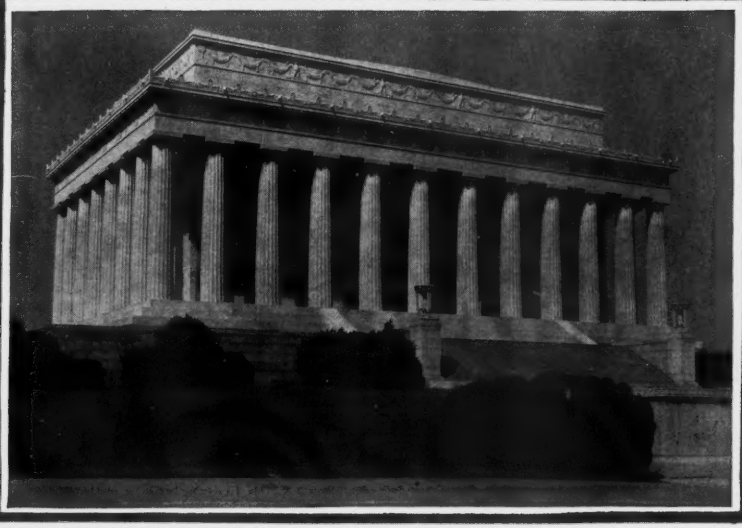
THE DENTAL DIGEST



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THE
DENTAL DIGEST

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Enamel Fissures, Their Development, Form and Diagnosis*

By Charles F. Bödecker, D.D.S., F.A.C.D., New York, N. Y.

Professor of Dental Histology and Embryology, Columbia University Dental School, New York, N. Y.

If enamel fissures in molars and bicuspids are treated at a sufficiently early stage, many teeth and still more pulps can be retained in a healthy condition. As experience forces this conviction upon an increasing number of dentists, the subject is bound to come more and more into the foreground of professional thought until it becomes routine practice.

When I first approached this subject in 1923, I was exceedingly wary, because I believed that Dr. Hyatt was too radical in the treatment of fissures and too optimistic as to the results to be obtained. As the result of the study of microscopic sections, I made a preliminary report in 1924 in which I expressed the view that under certain conditions the early treatment of fissures would be advantageous. Now, after two years of further studies of innumerable microscopic specimens, I take a radical stand and claim that the sooner treatment is instituted after the eruption of the molars, and in certain cases also the bicuspids, the better are the chances of retaining these teeth in comparatively sound condition.

At the time when I was not yet convinced of the soundness of the radical treatment of fissures, I paid an unexpected visit to the dental clinic supervised by Dr. Hyatt and asked permission to examine some patients whose tooth conditions had already been charted. I did this because the reliability of figures given by Hyatt and others who support the early treatment of fissures depends upon the intelligence, the thoroughness, and either the radicalism or the conservatism of those who make the examination.

It happened that my visit fell on a day when the snow was very deep. Getting about was difficult, so there were few patients. I examined four patients and found that the oral hygienists had not been by any means radical in marking the teeth that required fillings. In fact,

* Report of a clinic given before the First District Dental Society, New York, December 7, 1926.

there were two areas which I should have designated as carious that they had not so charted. This satisfied me that the figures obtained by the dental staff in this clinic have not been affected by what some dentists call the "fanatical ideas of Hyatt."

Hyatt's original statement was that fissures should be filled before decay has set in. If we keep in mind the definition of a fissure, this is not a radical statement. The controversy which flared up as the result of Hyatt's statement was caused by a misunderstanding of the term *fissure*. A fissure is a fault and, as such, a weak area in the enamel. The term has this meaning not only in dental nomenclature but in geology with reference to rocks. The dental profession had, however, come to regard the terms *fissure* and *groove* as synonymous and was therefore prone to think that Hyatt intended to cut into sound teeth and place fillings in all the grooves in molars and bicuspids. Now that the misunderstanding as to terms is cleared away, most of the critics have withdrawn from the field.

A knowledge of the manner in which grooves and fissures develop embryonically is necessary to a proper understanding of the subject. Without going into tiresome details the principles can be shown by means of diagrams.

Fig. 1 shows the first stage of embryonic development of a molar. The two tiny cusps of the future tooth are seen to be quite closely approximated. A dotted line in this diagram (also in Figs. 2-4) shows the size of the future tooth.

In Fig. 2, the cusps have moved apart, but no calcific union has taken place between them. In Figs. 1 and 2 the lobes are calcific islands joined only by soft tissue.

In Fig. 3, the two cusps have been united by calcified enamel and dentine.

In Fig. 4, the growth has progressed so that the crown is complete, with the exception of the areas occupied by the future groove and the gingival portion of the enamel.

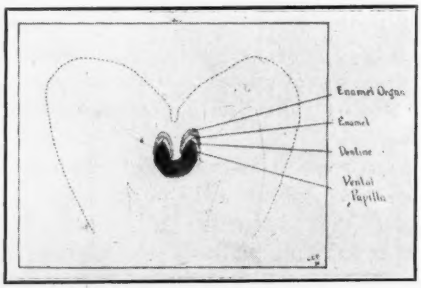


Fig. 1

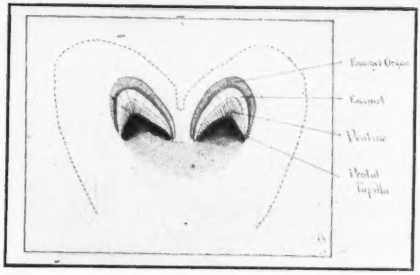


Fig. 2

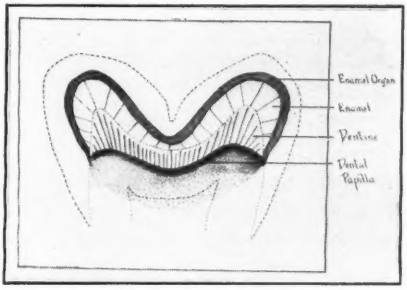


Fig. 3

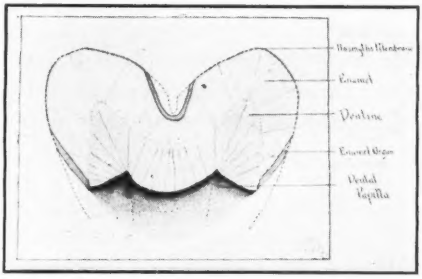


Fig. 4

Figs. 1-2-3-4
Successive stages in the embryonic development of a molar.

Fig. 5 shows the normal completion of the crown and molar. The groove is comparatively shallow and the lobes of enamel forming the individual cusps are thoroughly united.

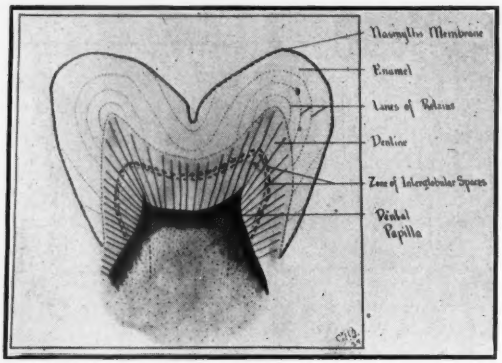


Fig. 5
Last stage in the embryonic development of the crown of a molar.

Fig. 6 shows the development of a fissure instead of a groove. The fissure encloses a double layer of enamel cuticle or Nasmyth's membrane and is formed by a lack of proper coalescence of the lobes of enamel, A and B, which were shown, separated, in Figs. 1 and 2.

Now that we have seen the manner in which grooves and fissures develop embryonically, we can easily understand the definition of a fissure as given by Black: "Grooves along the lines of juncture of the lobes of teeth are normal. When these are of such depth as to merit the term *fissure,* they are abnormal and are faults." Dewey expresses the same thought when he speaks of a fissure as "a fault, a groove in which the lobes of enamel have failed to unite perfectly." Hofheinz always taught his students that a fissure was a fault and must be filled.

Since fissures are faults in enamel, it might be expected that they would be rare in the teeth of man, but this is not the case. I believe

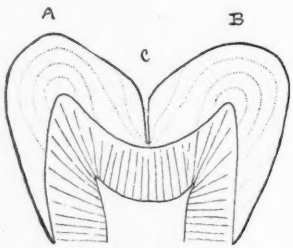


Fig. 6
Development of a fissure instead of a groove. Fissure "C" encloses a double layer of Nasmyth's membrane and is formed by a lack of coalescence of the lobes of enamel "A" and "B".

them to be frequent in the teeth of animals also. In human teeth they are often the beginning point of caries, while in animal teeth they are not. The reasons why animal teeth do not decay at the fissures would lead us far astray from the subject of this clinic. Caries of human teeth is most prevalent in the area where fissures are most numerous. There is not the slightest doubt that this is due to the presence of these *faults* in the enamel, because they are areas of lowered resistance to the agents of caries.

Fissures are often found also in the lingual pits of the upper laterals, and this is the reason why caries frequently occurs on the surface of these teeth.

Microscopic examination of ground sections of molars and bicuspids has disclosed that the poorly calcified areas of the fissures extend a variable distance into the enamel. I have therefore made a simple classification of fissures, which is important from both the theoretical and the practical aspects. It divides fissures into:

A. Complete fissures.
B. Incomplete fissures.

Complete fissures are those which extend through the entire thickness of the enamel and the dentine, while incomplete fissures always have a certain amount of normally calcified enamel between them and the dentine. We can readily understand that decay would not make such rapid progress in an incomplete fissure against even a thin layer of perfectly calcified enamel as at the bottom of the fissure, where the agents of decay have access directly to the dentine without any resistance from the enamel.

It is important for the operator to know whether the fissure is complete or incomplete, but he cannot tell this until he opens the fissure by the methods which Dr. Hyatt is describing in the early part of this clinic.* If the fissure is incomplete, it may not need to be filled; if it is complete, it must be filled.

The health of the occlusal surfaces of the molars and the bicuspids is menaced also by deep, narrow grooves, which easily retain food debris. This ferments, and lactic acid is formed and attacks the enamel, so that such grooves are often the starting point of decay.

Some of these grooves are so narrow that it is impossible to keep them clean by the aid of a toothbrush. As will be shown in the illustrations, the thickness of a single fine toothbrush bristle may be twice as great as the width of a groove.

Many operators believe that caries progresses very rapidly in enamel fissures. I believe this to be a misconception. It is true that a carious cavity may become visible in the occlusal surface of a molar, although

* See article on page 91.

three months previously there *appeared* to be none. I place emphasis upon the word *appeared* because the carious process was doubtless going on for at least one year before the strong roof of the enamel was finally broken down, thus disclosing the cavity on the interior of the tooth. If the enamel roof is exceptionally strong, the process may go on for a long time and the cavity may become very large before the enamel breaks down.

Dental caries starts in the fissures soon after eruption of the teeth, if the individual is at all prone to this disease. According to even optimistic statistics, only two persons in a hundred are free from dental caries, so we can well say that the great majority of fissures start to decay immediately after the eruption of the teeth. The process is quite slow in the initial stages. Even if the fissure is complete, which means that it reaches down to the dentine, it is filled with a partially calcified organic substance which is not rapidly disintegrated. When this material has become disintegrated and caries reaches the dentine, then it goes forward more rapidly.

The rapidity of the progress of dental caries in fissures is in inverse ratio to vigor of the mastication. Vigorous mastication prevents the formation of gelatinous plaques on all accessible surfaces; decay can therefore not take place in these areas. In the depths of the minute fissures and grooves plaques do form, but if the patient chews vigorously, these plaques will be frequently compressed, thus forcing out the accumulation of lactic acid and allowing the alkalin saliva to neutralize it. Thorough and determined chewing of food with resistant fibers is beneficial for all patients because of its cleansing action and the resulting stimulation of the local circulation.

Since microscopic specimens establish the fact that decay begins in the fissures soon after the eruption of the teeth, it is imperative to treat these areas as soon as possible after the teeth erupt. Many operators dread treating children seven years of age because they remember rather unpleasant experiences in cleaning out cavities for children nine and ten years of age. Such experiences should be in no way confused with the practically painless treatment of fissures in young children. Operators who will make methodical trials of placing prophylactic cement fillings in the first molars of patients of six and not more than seven years of age will be surprised at the ease and the success of the operation. While the child will approach the first sitting with some fear, the work will prove so nearly painless that thereafter the child will have no dread of it, and if it is explained to him that by this easy means he may avoid the painful experiences of other children, he will, in general, willingly cooperate. The dentist will thus gain from each little patient a confidence which he can make last through life, and which will make dental work better and easier for all concerned. If

the evil hour of attacking these fissures is left until the dentine has become infected, the excavation may be painful and there is great danger that some of the infected tissue may be left in the depth of the cavity. If carious dentine is left under a filling, decay will recur and a larger and deeper cavity will result.

This service is of great value to the patient throughout life, if only it is begun early enough. If the temporary molars are protected by the widening of narrow grooves and the filling of fissures, caries does not result so readily and thus the deciduous teeth are retained in a normal condition. The permanent molars and bicuspids will, therefore, be apt to erupt in better position than might otherwise be the case, and at least the foundations of a well-formed dental arch will be in place. If the first permanent molars are protected by the widening of narrow grooves and the filling of fissures soon after their eruption, their

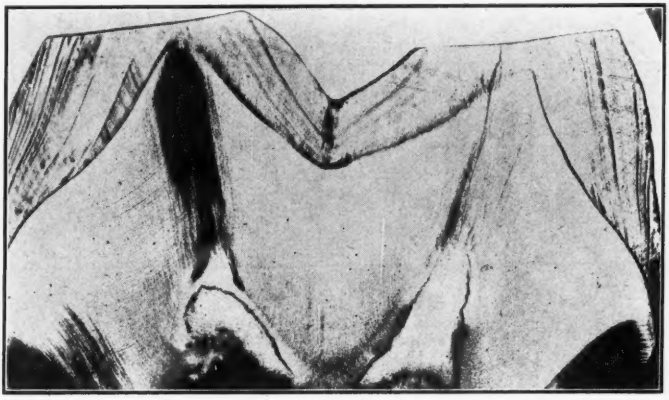


Fig. 7
Section of a molar with a perfectly formed shallow groove.

occlusal surfaces will probably remain in good condition throughout life. The experience of the Forsyth Dental Infirmary is showing that first permanent molars can be very easily kept in good health.

Fig. 7 shows a section of a molar with a perfectly formed shallow groove. The fact that the summits of the cusp have been worn away by abrasion proves that the individual used his teeth very vigorously, which did much to keep them clean and healthy.

Fig. 8 illustrates a longitudinal sectional of a molar showing two deep grooves and three shallow ones. At the base of the deeper central groove we note a complete fissure, which is indicated by a black line extending through to the dentine. In the shallower of the two principal grooves there is an incomplete fissure, shown by the black line which

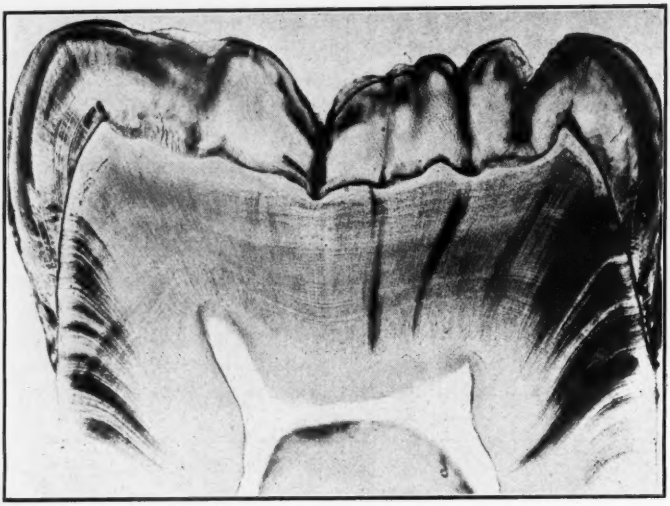


Fig. 8
Longitudinal section of a molar showing deep grooves and shallow grooves and complete and incomplete fissures.

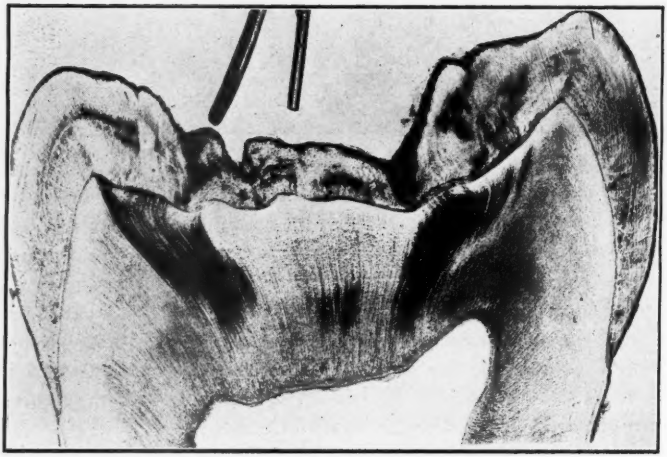


Fig. 9
Poorly developed enamel upon the crown of a molar.

extends part way to the dentine. Between the lower end of the black line and this dentine there is perfect enamel. The absence of all signs of abrasion indicates that this may be the tooth of a young person. The complete fissure should be filled and the incomplete fissure might well be.

Clinicians are frequently puzzled by the fact that poorly developed enamel, which is always brownish in color, does not decay readily. The reason for this may be explained by Fig. 9, which shows the comparatively poorly developed enamel upon the crown of a molar. The grooves are shallow and wide, affording little possibility for the retention of food. We can concede that the toothbrush bristles shown directly above the illustration of the tooth can readily keep such a tooth clean and, in consequence, caries does not easily develop.

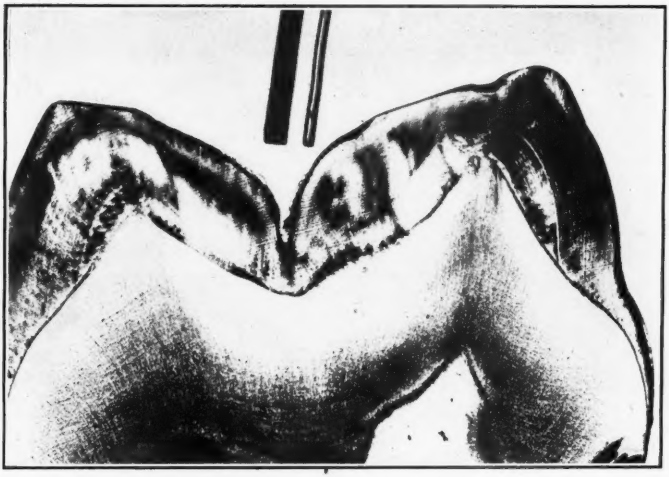


Fig. 10
Comparative widths of two toothbrush bristles and a deep groove in the crown of a molar.

Fig. 10 shows two toothbrush bristles above a deep groove in the crown of a molar. The diameter of the finer of the two bristles is 0.17 mm. (about 1/150 of an inch. The diameter of the coarse bristle is 0.28 mm. (about 1/90 of an inch). Even the finer of these bristles is about three times as coarse as an average human hair, which is 0.06 mm. (a little over 1/400 of an inch) in diameter.

The groove in Fig. 10 is neither unusually narrow nor deep. Yet it is evidently narrower than the larger of these bristles, and it is obviously impossible for a patient to keep such a groove clean with any

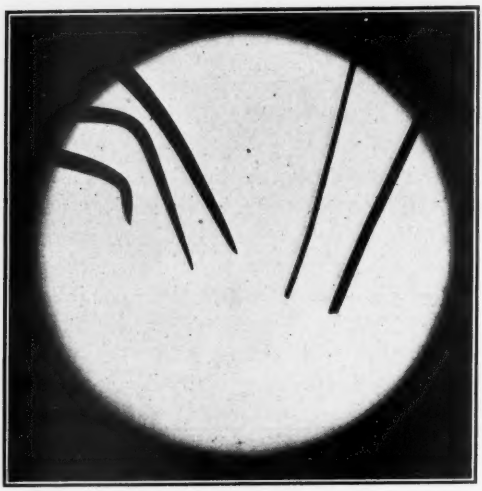


Fig. 11
On the right, fine and coarse toothbrush bristles; on the left, points of explorers commonly used to locate fissures.

Fig. 12
A complete fissure which could not be detected with an explorer.

toothbrush which has such bristles. Of course, a single bristle is not stiff enough to penetrate to the bottom of such a groove. The approaches to this groove and the groove itself show bacterial plaques, which have not been removed by mastication, and which the patient has evidently been unable to remove by brushing.

Fig. 11 shows, on the right, fine and coarse toothbrush bristles and, on the left, the points of explorers such as are commonly used to locate fissures.

Fig. 12 shows an explorer above the groove and a complete fissure. This figure is an excellent illustration of a great many teeth in which it is impossible for a dentist to tell by visual examination or even by

Fig. 13
A molar with a thin enamel cap.

the use of a fine explorer that a fissure exists. In order to protect this tooth from decay, he will be compelled to take a No. ½ round bur and trace out the grooves. If he finds at the bottom of the groove the resistance to be expected from sound enamel, he may then polish the sides and the bottom of the groove with a plug finishing bur or an Arkansas stone, with the assurance that he has benefited the patient by the operation because he has made a groove which otherwise would be food-retentive into a wide groove which will be more readily self-cleansing. If, on the other hand, he does not encounter such resistance at the bottom of the groove, he will know that a fissure exists, and that it is necessary either to cut it out and polish it, or to cut it out and fill it if it penetrates to the dentine. This is now my practice for all my patients, and it is proving very satisfactory.

Fig. 13 shows a thin enamel cap upon a molar. The structure of the enamel does not appear to be so thoroughly calcified as in normal teeth. The absence of a deep groove indicates a favorable prognosis, because the occlusal surface is practically self-cleansing.

Fig. 14 shows a wide, complete fissure in the occlusal surface of a molar. The prognosis for this tooth would be bad but for the fact that the patient has used the teeth so vigorously as to wear down the cusp and make the groove nearly self-cleansing, because it is impossible for food to lodge in it.

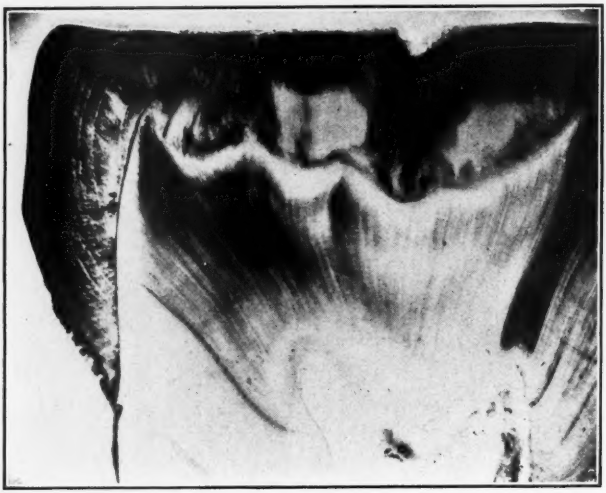


Fig. 14
Worn tooth with wide self-cleansing groove.

Fig. 15 shows a diagrammatic form of the penetration of dental caries through a deep, narrow groove into the dentine. We note that a considerable amount of dentine in the dento-enamel junction has been affected, and that communication between it and the surface is formed by the minute entrance. The agents of decay have entered a tooth through a fissure so narrow that it is difficult to diagnose unless one looks with determination for it. After getting through this narrow door the agents of decay have spread out at the dento-enamel junction and have affected a considerable area of dentine. When the dentist gets into this tooth, his instrument will drop into a relatively large cavity, which he has no means of discovering from the outside.

When caries has proceeded thus far, careful visual examination is likely to show a chalky or slightly bluish appearance in the depth of

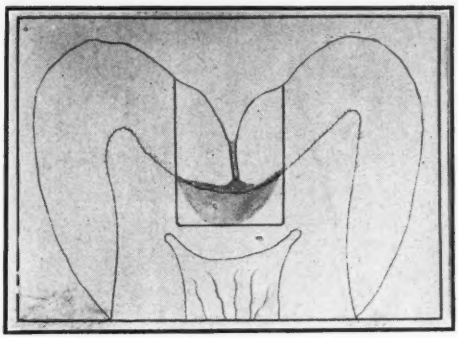


Fig. 15

The penetration of caries through a fissure, its progress along the dento-enamel border and the size of cavity to be excavated.

the groove, and the careful operator will decide that it is time to open the tooth and put in a filling. When he gets through the enamel, he is likely to be astonished at the size of the cavity. If this condition is not discovered as the result of the exploration of the fissure or by the change in color in the depth of the groove, much of the occlusal enamel is likely to be undermined before there is any other indication of caries on the outside of the tooth.

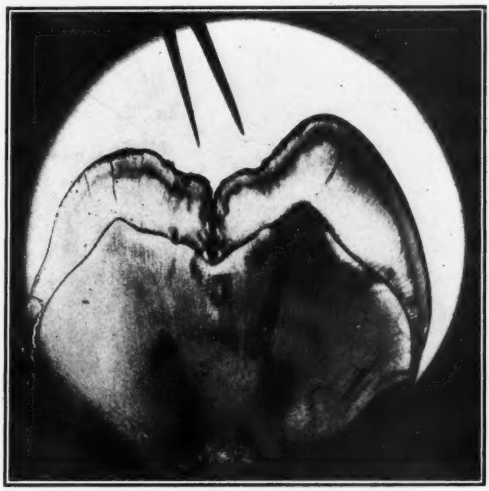


Fig. 16

A narrow, food-retaining groove, and two explorers in relation to a deep fissure.

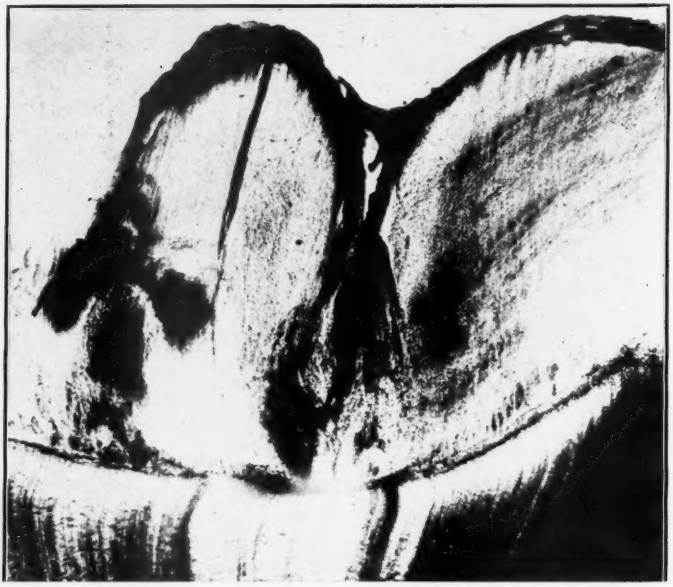


Fig. 17
Section of a molar in which the groove is completely hidden by a gelatinous plaque.

Fig. 18
Section of a molar with the groove almost completely filled with a transparent mucous plaque invisible in ordinary mouth examination.

Fig. 16 shows a narrow groove, formed to retain food, and two explorers in relation to a deep fissure. There is also a carious process in the dentine. The existence of this fissure cannot be detected except by following the groove out with a fine bur.

Fig. 17 shows a section of a molar in which the groove is completely hidden from the eye by a gelatinous plaque of the same color as the enamel and invisible by the ordinary methods of mouth examination. The groove is open below the plaque, and decay has affected the dentine.

Fig. 18 shows a section of a molar with the groove almost completely filled with a mucous plaque so transparent as to be invisible in ordinary mouth examination. The plaque is black in this picture. Between it and the enamel can be seen a tiny spot of white, which shows that the groove is open below the plaque. The agents of decay have penetrated through the enamel, and from a similar opening (not shown in this picture) the acid penetration of the carious process has affected the dentine as shown. This marks the decalcification of the dentine in advance of the progress of bacterial decay.

Fig. 19 represents about the condition when many dentists decide that it is time to place a filling. There was probably a fissure through

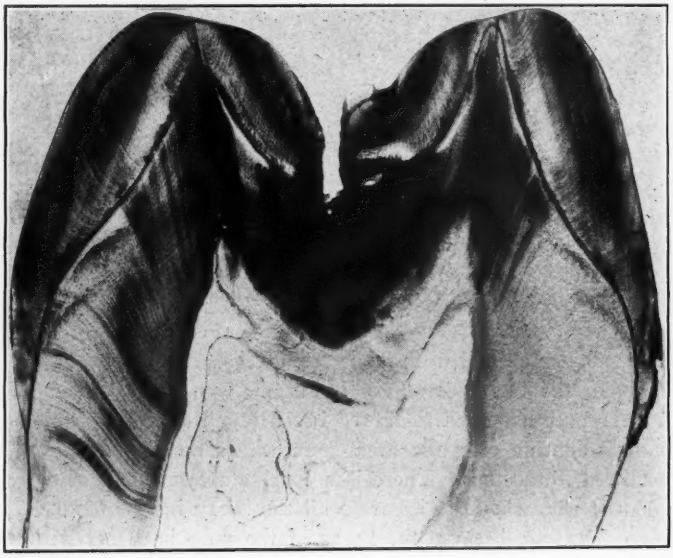


Fig. 19

Showing the condition when the necessity for a filling is evident to many dentists.

which the agents of decay reached the dentine and began to undermine the enamel. The undermined enamel alongside the fissure broke down until the opening was three or four times as large as the point of an ordinary explorer. The destruction of the dentine is so extensive that the filling will have to be extended until it includes the greater part of each cusp. Failure to excavate all the decay often leads to recurrence of decay within two or three years.

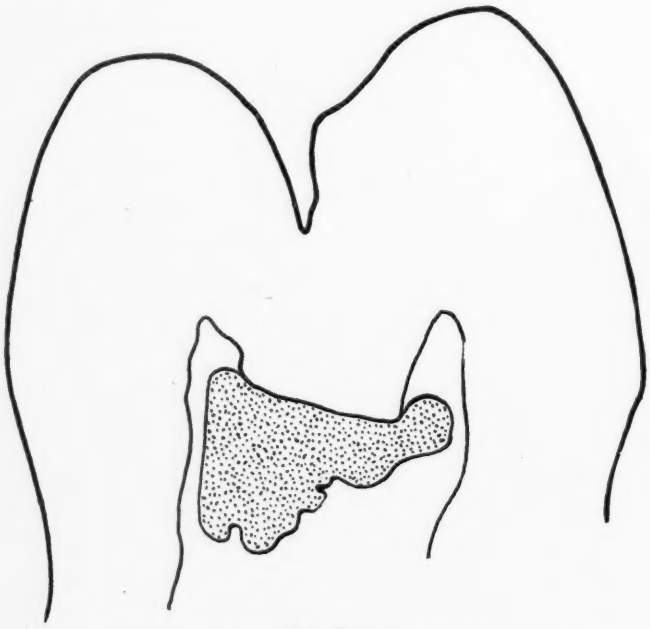


Fig. 20
A diagrammatic illustration of a large nodule of secondary dentine built by the pulp as defense against irritation.

Fig. 20 shows a diagram made from Fig. 19 to emphasize the fact that, under the influence of the irritation from the approach of this decay, the pulp has tried to defend itself by building a large nodule of secondary dentine over the area from which the irritation has been transmitted to the pulp. There is a considerable element of danger to the dentist who wishes to excavate all the decay in this tooth in order to place a filling, because the horns of the pulp have not withdrawn. The reason for this is that the tubules leading to the horns of the pulp have not yet been included in the area affected by decay, have not felt the irritation, and have not therefore transmitted it to the pulp.

Fig. 21 shows an apparently shallow gingival cavity in an anterior tooth. The irritation from the decay has gone down the tubules of the area involved and has caused the pulp to build secondary dentine on the pulp chamber wall over the area of irritation as a means of defense. The pulp is not shown in this section.

Fig. 21
Secondary dentine resulting from the irritation from a shallow cavity.

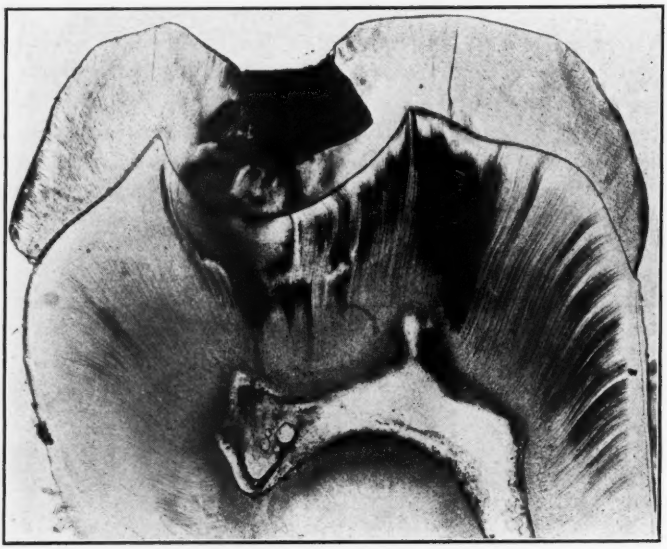


Fig. 22
Unexcavated decay destroys the tissue under the filling.

Fig. 22 shows where a filling has been placed in the principal groove of a molar without the excavation of all the underlying decay. It will be seen that the decay left under the filling has gone through the enamel and penetrated the dentine for a considerable distance.

When your bur finds a fissure, fill it!

302 East 35th Street

An Operative Technic for the Prevention of Dental Caries*

By Thaddeus P. Hyatt, D.D.S., F.A.C.D., New York, N. Y.
Dental Director, Metropolitan Life Insurance Company

When parents begin to let dentists take care of the teeth of their children at a sufficiently early age, the future history of the development of dentistry will begin to change. The dentist should see the child not later than six weeks after the eruption of each of the deciduous molars and each permanent bicuspid and molar. At that time the areas of the teeth in which pits and fissures are most likely to occur should be examined with the aid of a fine explorer. The buccal and occlusal surfaces are the most susceptible, but the lingual surface is not wholly immune.

If the point of a fine explorer will catch in any of these surfaces, it will be in a narrow, deep groove, where food debris might be easily retained, or in a pit or a fissure. No toothbrush can keep a place clean in which an explorer point will catch. A groove as narrow as this should be opened with a No. ½ round bur. If there is no fault nor fissure along the base, then it should be opened wider with a No. 2 bur, or it may be widened with a small root reamer. In both cases the ground area should be polished with a fine-cut finishing bur or with an Arkansas stone. This procedure will result in establishing a wide groove with no flaw at the base, which can be kept clean by mastication or by brushing. Such a procedure immunizes that part of the tooth without any filling.

If the place at which the explorer point first catches turns out to be a fissure, the cutting should be continued until the base of the fissure is reached. This can be detected by a fine explorer point or by the use of binocular lenses. If the cutting is required to go halfway through the enamel, the fissure should be widened by the use of a No. 2 bur. It is desirable to give such a fissure a flat floor by using a flat-ended fissure bur.

The width of such a fissure, which is now a cavity, should be increased at the floor by the use of a No. ½ bur, which will give sufficient undercut for the retention of filling material. It is not desirable to use inverted cone burs because it is difficult to fill the acute angle which they make. Fill the cavity a little fuller with amalgam than is necessary, using the best technic. Two days later, cut that amalgam down to the desired level, shape the surface with a

* Report of a lecture clinic given before the First District Dental Society, New York, December 7, 1926.

fine-cut finishing bur, and polish with burnishers. Dr. Ottolengui has shown that occlusal amalgam fillings that were polished are practically 100% perfect.

Buccal pits are frequently found in the lower molars and should be treated in the same way. They will make pin-hole fillings. The distal occlusal groove of the upper molars frequently extends over the marginal surface and half-way down the lingual surface, and at its end there is often a well-formed pit. Such pits should be treated in the same manner.

Pits are often found in the lingual sides of the upper laterals. These should be dried, excavated, and filled with gold in preference to anything else if the patient is old enough, or, if the patient is not old enough, they should be filled with some cement for a time.

Interproximal surfaces of the deciduous molars and the permanent bicuspids and molars can be kept clean by the use of floss silk. There is not such great susceptibility to decay on the approximal bicuspid and molar surfaces as on the approximal surfaces of the incisal region.

The reason why it is important to examine the pits and fissures of these teeth so soon after eruption, in the manner described, is that caries at these points will not enlarge the cavity externally and therefore make it more readily visible, but the enlargement of the cavity will continue at the dento-enamel junction perhaps until the tooth is nearly destroyed. That explains why we so often open into a molar which has been erupted not more than two years and find that, while there is very little evidence of decay on the surface of the tooth, there is a big cavity inside, which may extend close to the pulp chamber.

Another reason is that very slight caries at the dento-enamel junction causes a reaction in the pulp, the nature of which is not known but which it is safe to assume cannot be beneficial. Such decay may result from the entrance of the decay-causing bacteria through a pit or a fissure and the actual beginning of caries at the dento-enamel junction. The policy of watchful waiting for external evidences of decay at these locations in these teeth may be fatal to the pulp. The use of silver nitrate in such fissures, without operative procedure, has not been efficient in protecting teeth against the progress of decay in the base of the fissures, but silver nitrate and formalin (Howe method) will discover by penetration defects which might not otherwise be readily visible, and will often prove valuable.

Some dentists may hesitate to cut out as many fissures as they are likely to discover. They may be inclined to think that they can find anything they look hard enough for. It may comfort such dentists, however, to know that 88% of all first permanent molars have such pits and fissures, and that if they should occasionally make a mistake and cut out a groove or a spot which does not need it, the

damage will be far less than to overlook even a single pit or fissure. The experience of the Forsyth Dental Infirmary shows that if these pits and fissures are properly cut out or filled, the teeth show a surprising immunity to decay at other points.

1 Madison Avenue.

Gold Foil Fillings for Pit and Fissure Cavities

By Leroy L. Hartman, D.D.S., New York, N. Y.

Let us consider the preparation and filling of pits and fissures where gold foil is certainly indicated. It is desirable to prepare and fill cavities in a dry and aseptic field. The application of the rubber dam takes but a few moments and is a great time-saver if the holes are located properly and punched large enough so that the edges may be inverted. Ligate teeth but rarely, and use suitable clamps only when necessary.

Sharp burs and cutting instruments are used with a definite procedure, the caries is removed, the floor prepared flat and located in

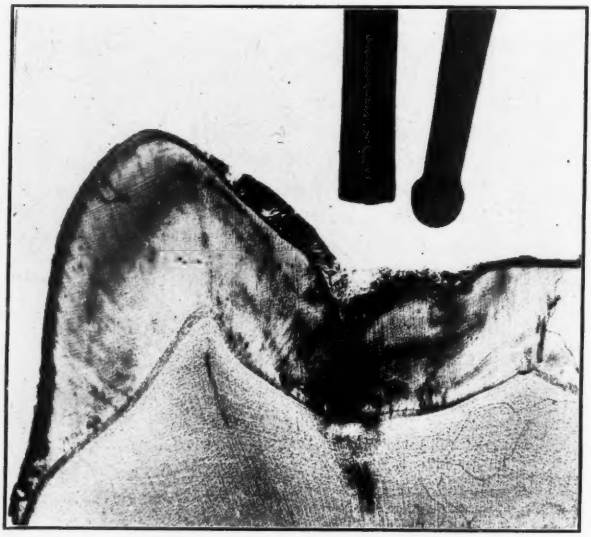


Fig. 1

sound dentine. If it appears that the flattening of the floor will involve the pulp, the caries may be scooped out and a definite ledge prepared part way up the side walls. The deeper portion may then be filled with cement, and the ledge will then supply all the required floor in the dentine.

The walls are so prepared that at least two opposite walls are parallel. All angles in the dentine should be sharp and definite, and undercuts are unnecessary either for retention or for convenience form.

The enamel walls should have all of their rods resting upon sound

dentine, and all angles should be rounded to give the greatest efficiency to the walls. The cavo-surface angle should be bevelled one-fourth the length of the rods at an angle of from six to ten centigrades,* in order to remove all loosened enamel rods and prevent any possible checking during the filling operation.

After the caries has been removed, cavities should be extended just enough on the tooth surface so that it is possible to finish the margins with ease. If caries approaches but does not undermine the marginal ridges, it is necessary only to slope those walls and in that way safeguard the ridges. If the ridges are undermined, it is necessary to cut through them and make a step preparation.

Fig. 1 shows a photomicrograph of a small fissure cavity, with a No. 55½ plain fissure bur and a No. ½ round bur above. It would be necessary to exert considerable force with an explorer to enter that cavity and then with the No. ½ round bur it should be thoroughly opened, after which the No. 55½ fissure bur should be used to prepare an ideal form—a flat floor, parallel walls and all of the enamel rods resting upon sound dentine.

Fig. 2

Fig. 2 shows the outline forms for pit and fissure cavities in the upper bicuspids and molars. The first bicuspid presents a small fissure, which should be opened with an explorer followed by a No. ½ round bur to open the cavity, and then a No. 55½ plain fissure bur is used to flatten the floor. Parallel the buccal and lingual walls, and as the mesial and distal marginal ridges are approached, those walls are sloped toward the long axis of the tooth. The enamel wall is finished with a chisel. The cavity may be filled with a round direct-action plugger of .5 millimeter in diameter, starting in one angle and building until the margins are all covered. It may be finished with a No. 1 round bur used with a push-and-pull movement, followed by a No. ½ round bur for the details.

The second bicuspid in Fig. 2 illustrates the parallelling of the mesial wall of the cavity with the mesial surface of the tooth and the

* A centigrade equals 3.6 degrees.

distal wall of the cavity with the distal surface of the tooth for a more extensive area of caries. Plain fissure burs are used as well as cutting instruments. This may be filled with a round, direct-action plugger of a millimeter in diameter or with the smaller parallelogram points. It is finished by using round burs, the first one being larger than the width of the cavity, followed by smaller ones, for details.

The first molar in Fig. 2 illustrates a pit in the mesial fossa, which is opened by a No. ½ round bur and the preparation continued with a No. 55½ fissure bur. It is filled with a round, direct-action plugger of .5 millimeter in diameter. The disto-lingual groove is prepared with the same instruments, the contra-angle handpiece being used. The filling operation here differs in that it is necessary to use either a compensating plugger or hand pressure.

The second molar in Fig. 2 illustrates a case where the oblique ridge is involved and calls for a more extensive preparation. It is most easily filled by the use of the compensating plugger.

Fig. 3 illustrates pits and fissures in the lower molars and bicuspids. The first bicuspid usually presents with two small pits, which do not

Fig. 3

require any more extension than that illustrated. The compensating plugger is most useful here.

The second bicuspid in Fig. 3 illustrates the form most common for this tooth.

The first molar in Fig. 3 illustrates a case where the buccal and lingual grooves and marginal ridges are involved, showing the outline form followed.

The second molar in Fig. 3 shows the usual form where the buccal and lingual grooves are not involved.

Fig. 4 shows that a simple buccal pit in a molar can easily be filled by the use of the compensating plugger or hand pressure.

Fig. 5 illustrates the lingual pit in an upper lateral. A No. ½ round bur for opening is followed by fissure bur and hoes. It is filled by a round, direct-action plugger .75 millimeter in diameter.

It is not necessary to repeat here the preparation of gingival third and simple proximal cavities, where gold foil is also a most useful

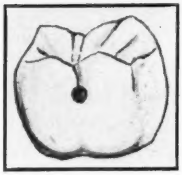


Fig. 4

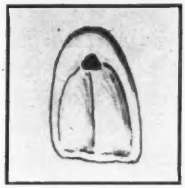


Fig. 5

filling material, except to mention that in the filling of gingival thirds the operation may be expedited by wedging a non-cohesive cylinder of foil against the gingival wall and completing the filling with cohesive gold.

These fillings can be made rather inconspicuous in the mouth if due attention is paid to contour, and if the fillings are given a dull finish in the final polishing by the use of moistened pumice with a rubber cup or a brush wheel.

Restorations of the deciduous teeth, restorations of permanent teeth in very young patients, large contours for older patients, restorations for patients suffering from marked peridental conditions and other physical or mental conditions which might prevent the operator from obtaining successful results are all contra-indicated for gold foil. Where gold is indicated, less cutting of healthy tooth structure is required than for any other of the so-called permanent filling materials.

Pits and fissures can easily be prepared and filled in from fifteen to thirty minutes; gingival thirds can be prepared and filled in approximately the same time, and the other cases where foil is indicated can certainly be handled with ease and without tiring either the patient or the operator.

The greatest intrinsic value of foil as a filling material lies in the fact that the elasticity of dentine is closely comparable to the sustaining power of hammered pure gold. It may therefore be adapted with great force to cavity walls and is capable of immediately and permanently sustaining that forcible adaptation. There would still be sufficient residual elasticity in the walls of the cavity to exert a permanent grip around the wedged gold and to accommodate completely any expansion of the gold due to the thermal changes encountered in the mouth.

The manufacturer produces two types of non-cohesive gold. One is permanently non-cohesive and is used in conjunction with cohesive gold, while the other may be made cohesive by annealing with an electric annealer or by an alcohol flame.

To retain the cohesive property, cleanliness is most important. Moisture and gases, such as members of the sulphur and phosphorus groups, should not touch the surface of the prepared gold.

Annealed gold is a soft metal and welds perfectly in the form of foil when clean surfaces are pressed together, but with careful hammering it can be brought to a very hard state. In the filling of teeth all parts of the foil should be welded into one solid mass. The use of sufficient force by hand pressure to accomplish this well becomes exceedingly tiresome both to the patient and to the operator. For this reason the mallet has come into general use, and various forms of automatic mallets have been advocated, but the hand mallet in the hands of a competent assistant, who anneals and passes the foil with the right hand and mallets with the left hand, has proved a most satisfactory method.

In the hammering or condensation of foil, as we term the process, blows of a mallet are used upon a plugging instrument and we depend upon the force of the blow at the moment of contact to weld the gold. The weight of the mallet, the velocity of the mallet, the character of the resistance and the area of the surface over which the effect of the blow is expended must be considered, and it has been clearly demonstrated that an area of gold foil one millimeter in diameter requires 15 pounds of stress for condensation.

When the diameter of the plugger is increased, a necessarily greater blow is required to condense the gold, and it is rare indeed that an assistant trained in malleting can strike a blow of 25 pounds. For that reason judgment must be used in the selection of the size of the plugger points. The smaller sizes of points are favored, requiring lighter blows from the mallet to accomplish the same results.

In his left hand the operator uses a holding instrument to assist in placing and holding the foil in position in the cavity, and with which also to exert pressure so that the fibers of the peridental membrane may be rendered tense and thus minimize the shock of the mallet blow.

In his right hand the operator holds the plugging instrument, upon which the assistant rains blows as the operator directs. During the filling process this instrument should be moved in regular lines, always working from the center of the mass toward the walls. Each piece of foil should be thoroughly condensed before an additional piece is added and the last condensation of each individual piece should be along the wall being covered.

The angle of force should never be perpendicular to the plane of the wall being covered, but should be inclined as much as twelve centigrades.

The operator should keep in mind the tooth form, as he builds his restoration, so that when the margins are carefully covered, only a very little finishing will be required to remove the surplus gold and complete the carving.

30 East 40th Street.

Special Teeth for Cross-Bite Cases

By Alfred Gysi, D.D.S., Zurich, Switzerland
Professor of Prosthetic Dentistry, University of Zurich
(Literary Collaboration by George Wood Clapp, D.D.S.)

INTRODUCTION

During the last forty years Dr. Gysi has made or supervised the making of more than 18,000 full and partial dentures. Of these he personally has made about 3,000 in his own practice. Since he became associated with the University of Zurich he has supervised the construction of more than 15,000 dentures.

These dentures have been constructed for all classes of patients, sick and well, intelligent and ignorant, rich and poor, old and young. It is probable that they have presented every form of difficulty likely to be encountered in any ordinary dental practice, including extreme disparity of size and form between maxillary and mandibular alveolar arches, prognathism, lateral displacement of the mandible, partial or complete lack of mandibular control, complete alveolar resorption, mental antagonism, and, perhaps most difficult of all, occasional lack of sufficient mental development to enable them to make simple movements of the jaw as directed.

These people have had two characteristics in common: (1) the need of artificial teeth and (2) the desire to have these teeth comfortable and efficient. Dr. Gysi's task has been to solve the problems they presented and to direct the construction of dentures that would meet their requirements.

For nearly forty years Dr. Gysi has known that in cases where the maxillary arch is small in proportion to the mandibular arch artificial teeth of the usual form, which he here calls *normal-bite* teeth, cannot be arranged to afford comfort and efficiency. His preceptor and he long ago made efforts to secure stability and efficiency by a cross-bite arrangement of the teeth. Advantages were gained, but in many cases the results were not wholly satisfactory. Since that time Dr. Gysi has experimented almost continuously in the search for tooth forms that would afford stability, efficiency and comfort in cross-bite arrangement.

About thirteen years ago Dr. Gysi brought to this country pattern teeth designed for cross-bite set-ups, but they were not introduced to the profession. As a result of his labors since that time, he has developed new applications of the laws governing the formation of occlusal surfaces which can be applied to the formation of teeth especially suitable for cross-bite cases. He is able to demonstrate that the use of normal forms in a cross-bite arrangement can never be more than partly successful, and even a superficial reading of what follows will convince experienced dentists that teeth designed especially for the cross-bite arrangement will be of great value in a considerable proportion of edentulous cases. About 60 per cent of the full denture cases at the University of Zurich are better served with cross-bite forms of teeth than with normal forms.

For the benefit of dentists who desire to be informed only of results and not of the reasons therefor, a summary of the practical aspects of this series of articles is given as the first article. They will need to read no farther to get the gist of the matter. Dentists who wish to avail themselves of new light on some of the problems of full denture construction and to know something of the labors by which the new discoveries have been made and applied will find much of interest and instruction in the succeeding articles.

It is a pleasure to have the opportunity of literary collaboration with Dr. Gysi in presenting to the dental profession these results of his studies.

GEORGE WOOD CLAPP

FIRST ARTICLE

A SUMMARY OF PRACTICAL ASPECTS

In natural dentures, when all the teeth are present in good positions, the mandibular arch is wider than the maxillary arch in the molar region. Following extraction of the teeth, resorption of the ridges narrows the posterior portion of the maxillary arch and widens that portion of the mandibular arch, increasing the disparity between them.

The degree of disparity between the alveolar arches can be conveniently measured by drawing a line from the crest of the mandibular ridge to the crest of the maxillary ridge, at the first molar, to be known as the *interalveolar crest line,* and measuring the angle formed by this line with a hypothetical occlusal plane drawn at right angles to the sagittal plane. The angle thus formed may be known as the *interalveolar-crest-line angle.*

When the interalveolar-crest-line angle is of 80° or more, normal-bite teeth in normal arrangement may be successfully used in the construction of artificial dentures. When that angle is of less than 80°, normal-bite teeth in normal arrangement cannot be employed with complete success, either because they will carry the line of masticating stress so far outside the maxillary ridge that the denture will be easily tipped out of position or because the teeth will have to be set in such positions that they will crowd the tongue and the mandibular denture will be dislodged.

Cases in which the interalveolar-crest-line angle is of less than 80° require a cross-bite arrangement of the bicuspids and molars. This increases the stability of the maxillary denture, permits the exercise of greater mastication force than would otherwise be possible, and affords tongue space.

Cases in which the interalveolar-crest-line angle is of 80° or more may well be known as *normal-bite* cases. Cases in which that angle is of less than 80° may well be known as *cross-bite* cases. By means of a little device which any dentist can easily make and use, cases may be readily diagnosed as normal-bite or cross-bite.

Cross-bite arrangements of normal-bite teeth, while better for cross-bite cases than normal arrangements, are not entirely satisfactory. They require from dentists and technicians an amount of time and labor which many cannot give to this form of service.

For cross-bite cases it is desirable that there should be cross-bite forms of bicuspids and molars which may be arranged without the expenditure of more time and labor than are required for normal-bite teeth in normal arrangement. The task of designing such teeth in accordance with the engineering principles which I announced years ago has been very difficult, but it has now been done.

Cross-bite teeth cannot do so much work at each closure of the jaws as normal-bite teeth in normal arrangement, if both dentures remain firmly seated. But cross-bite teeth so articulated as to hold the maxillary denture in place and give the tongue ample space will do more work and better work in the course of a meal than normal-bite teeth in cross-bite cases.

When for any reason either ridge is incapable of sustaining any considerable amount of pressure from dentures, a special form of cross-bite teeth, which masticates fairly well with the exercise of slight force, is indicated.

If such teeth are set with their long axes in the interalveolar crest line, the force of mastication will fall inside the margins of both dentures and will stabilize the plates. Patients will be able to exert more power in mastication than would otherwise be possible with any arrangement of normal-bite teeth in a cross-bite case.

Cross-bite teeth, properly arranged, leave more room for the tongue than normal-bite teeth in cross-bite arrangement. This is more important than may appear at first glance.

(*To be continued*).

PERCY HOWE'S LETTERS
In Collaboration with "Brother Bill"

PERCY HOWE'S LETTER AS DICTATED TO BROTHER BILL

SECOND LETTER

My dear Madam:

In order that I may answer your letter in such a way as to be of some practical value to you, let me reproduce here the one paragraph to which I want to reply.

"You say that probably not more than two of the vitamins are deficient in the diet of my children at the present time. Will you please tell me what they are? And you employ several times the phrase, 'at least one of the most important of the vitamins.' Please tell me what you mean by this."

I said that only two of the vitamins are likely to be deficient in the diet at this time because investigators recognize five different vitamins and you may easily be confused among them. One of these is found abundantly in animal fats and to a less extent in some vegetable fats. It is known as *Vitamin A* and is frequently referred to as *Fat Soluble A,* and this name may help you to remember where it is found. It is important to you, but not so important as another vitamin.

You may safely pass by, without attention at this time, three other vitamins which are called *B, D,* and either *E* or *X*. What little we know about these probably does not apply to the condition you described in your children, and we need much more information before very definite statements about them can be made.

It was to Vitamin C, generally known as *Water Soluble C,* that I referred as "one of the most important," and fortunately we know enough about it to make practical applications of great value. Vitamin C is found in greatest quantity in fruits and vegetables which are grown outdoors in open sunshine, as well as in whole milk which has not been pasteurized. The more sunlight, the better the fruit seems to be in this respect. For instance, oranges, lemons, grapefruit and pineapples are the best known sources of this vitamin. Nearly a year of tropical or subtropical sunshine is required to perfect the chemistry of these fruits. Fruits and vegetables grown under glass are not good sources of this vitamin.

Among the vegetables, tomatoes, cabbage, lettuce and carrots are excellent sources of Vitamin C.

It is especially worthy of note that all these fruits and vegetables may be eaten raw. You will find young, fresh carrots, eaten raw, very palatable, or grated carrots may be included in some salads. Carrots

have proved very valuable in restoring or maintaining the health of our experimental animals.

One of the most ordinary illustrations of the destruction or reduction of this vitamin by heat or drying is connected with pasteurizing milk or drying it into powder form. Please do not understand me to say that the pasteurization of milk is not important or desirable, under certain conditions. The milk for a great city must come from many sources, and no vigilance on the part of the inspectors can keep all of those sources clean or all the cows healthy. If my milk is to come from unknown sources, I prefer to have it pasteurized, because I can compensate for the loss of Vitamin C by taking enough orange juice. Some dairies, however, keep only healthy cattle and handle milk by such sanitary methods that it does not need to be pasteurized. These methods necessitate a higher price per quart than that for even *Grade A* milk, but the milk is worth it. It is sometimes sold under the name *Certified Milk* or some other special name. The importance of such milk as a food for growing children cannot be overstated.

While we could probably obtain sufficient quantities of this Vitamin C for our laboratory animals from almost any of the fresh fruits or from tomatoes, we prefer orange juice, partly because it is easy to obtain fresh throughout the year and partly because the animals are very fond of it and take it easily. In spite of what I have written you about the advantage of eating all the pulp of the orange, we are compelled to use only the juice, because everything that is fed to experimental animals must be accurately measured or weighed and then recorded. So we feed orange juice with a medicine dropper, sometimes as much as 20 cubic centimeters (about 2/3 fluid ounce) per day to a small guinea-pig. We feed the cellulose from the orange pulp separately.

About ten years ago I came across a small boy who knew more about foods than most of the investigators knew at that time. It was during the War, and his parents had moved to our suburb and started a garden so that the nation's surplus food might go to the boys in France. This boy was then about five years of age, and when the vegetables began to come along, he certainly took himself out of the general food market. He played out of doors most of the time when he was not asleep, and whenever he felt hungry—and that seemed to be a good deal of the time—he went into the garden and ate tomatoes, cucumbers, carrots, beans and green peas, pods and all. His mother was greatly alarmed lest something in this diet should injure him, but when she saw that no aches nor pains resulted, that he was growing like a weed, and that he slept soundly, her fears were diminished. With the close of the War the family moved back to town, and when the boy fell into a period of physical disability, two or three years

later, she attributed it, at least in part, to a return to a modern diet. The boy was right—he had gone back to first principles. There was nothing in the diet to do him the slightest harm and much to do him good.

Any animal which is deprived of a sufficient quantity of Vitamin C for a sufficient time will develop scurvy. You probably remember hearing about scurvy as something that afflicted sailors who were a long time at sea without fresh food. And you probably imagine that the disease has disappeared. It may astonish you to know that in the opinion of some very careful students a mild form of scurvy is common among people today, especially the rich and well-to-do. The symptoms are not sufficiently well marked to be recognized as scurvy, but they are of tremendous importance, because they may comprise retarded growth, warping of the body structure, lowered vitality and ready susceptibility to colds and more serious forms of illness. These students base their belief upon the symptoms which are produced in animals by a slight known deficiency of this anti-scurvy Vitamin C, over a long period, and the astonishing similarity of the symptoms in many people. These symptoms can be produced in guinea-pigs and monkeys by continuous feeding of such a diet as is found in many well-to-do American homes.

Many breakfasts for both adults and children consist of a cooked fruit, a refined cereal, pasteurized milk or cream, and perhaps bacon and eggs. There are many necessary food elements in such a meal, and you are not to understand that I decry them, but it lacks the foods that contain this anti-scurvy Vitamin C; and if you feed that diet long enough to a healthy monkey who lives in a clean, comfortable cage, he will develop scurvy. Of course, left to himself in the open, he would never think of such a diet. This meal can be corrected by substituting a sliced orange for the cooked fruit, especially if it is eaten half an hour before the rest of the breakfast.

You will want to know what scurvy is, because, from the description you have given of your children, I think possibly that is what is the matter with them. It is a particular form of starvation. It has some very serious effects that we know about, and perhaps others remain to be discovered or better understood. I say "a particular form of starvation," because our experience with our animals clearly demonstrates that the body may have all the important food elements except one and die for lack of that.

We have devised for our animals what we call a *normal diet* or *balanced ration,* and on this they grow, remain in health for long periods and reproduce normally. Then we change the diet of a group of animals and compare their condition with that of the animals on normal diet. If we entirely remove this anti-scurvy Vitamin C from

the food, we can keep them alive no longer than four weeks, even if the diet is perfect in every other respect. If to the otherwise perfect diet we add just enough of the Vitamin C to keep them alive, the most astonishing changes take place. Death does not come immediately or completely, as with entire deprivation, but it comes creeping on slowly, insidiously and progressively, until it involves all of the bony tissues, including the teeth. Even the enamel, which is the hardest and perhaps the most resistant tissue in the body, is affected.

The particular form of starvation which is scurvy dissolves the soft or organic parts of the bones and teeth. In bones and teeth there is an organic matrix or framework, and the mineral salts, which give stiffness and hardness, are held in this organic material. Even the enamel has such a framework, and evidence which lies before me as I write indicates that there is more circulation in the enamel than we have supposed. When the body is deprived of enough Vitamin C for a long enough time, something happens to this matrix, perhaps in tiny spots here and there throughout the body, and if the deprivation is sufficient, the matrix will break down. I believe the white spots in the enamel of your children's teeth to be food deficiency spots, indicating a change in the organic matrix of the enamel. In the one tooth where you say the cavity is forming on the labial surface, I believe the matrix has broken down. I also believe that by means of a well-balanced diet, which would include a sufficient quantity of Vitamin C, the matrix can be restored to health where it is not too seriously affected.

Just as I began this letter, there came to my office from a long distance a dentist with unusual powers of observation. He has been in practice for twenty-five years. His patients are from rich and well-to-do families. He is seriously disturbed by the increase in the number of such spots as you described and feels sure that there are more of them than he used to see among his poorer patients years ago. He shares in the opinion held by many others that the quality of teeth is deteriorating, and that decay is on the increase. The strictest oral hygiene is unavailing for such patients. When these spots break through, the teeth decay with appalling rapidity. Cavities develop where cavities should never occur. He has talked to parents for years about diet for the children, but has never accomplished much. In two cases in which he has been able to interest the children themselves in the daily use of liberal quantities of orange juice and green vegetables, the trouble appears to have been arrested.

I am writing this in Boston. Oliver Wendell Holmes once wrote that in the mind of every true Bostonian the Hub of the Universe sticks out visibly through Boston Common. I don't want you to think from what I have written that Vitamin C is the Hub of the Universe

or even of your life. All I want you to get in mind is that the consequences of the lack of it are very serious, and that the benefits which result from enough of it in the food are very great.

Yours very truly,

Percy R. Howe

The Use of the Chisel in the Removal of Teeth*

On October 20, 1926, the Oral Surgery Section of the First District Dental Society, New York, held a meeting at the Columbia University Dental School. Douglas B. Parker, M.D., D.D.S., of New York gave a paper on *The Use of Hand Chisels and Elevators in the Removal of Teeth.* This was followed by a paper by Morris I. Schamberg, M.D., D.D.S., of New York, on *The Use of the Mallet and Chisel in the Removal of Teeth.*

Dr. Parker's address may be summarized as follows:

It is not to be presumed from the title of this paper that elevators and hand chisels are used exclusively. The forceps are not displaced, but all of the root of a tooth and the pathologic areas must be removed and in many cases the hand chisel must be used to accomplish this. The hand chisel is indicated under the following conditions:

(1) When the crown of a tooth is badly broken or is missing.
(2) For multi-rooted teeth which are greatly bifurcated.
(3) For roots that are greatly curved.
(4) For roots with hypercementosis.
(5) For unerupted and impacted teeth.
(6) For retained apical ends.
(7) For apical pathology that cannot be removed from the socket.

The hand chisel and the elevator are used in conjunction. The chisel cuts away the bone, while the elevator is used to deliver the tooth. The hand chisel is especially indicated for surgery on the head under local anesthesia, because the shock is less than from the blows of the mallet. Also, it is better under nitrous oxide anesthesia, because it is speedier and permits the operator to cut more bone than with the mallet and chisel. The technic of using the hand chisel is more difficult to acquire than that of the mallet and chisel, but the results are superior.

The chisel is used (1) for removing the buccal or labial plates, and (2) for removing the overlying cortical bone. This is similar to the technic advocated by Novitzky and Gardner.

The hand chisel should be shaped so that it may be grasped comfortably and easily. The shank and the handle should be only long enough to reach the field of operation. The cutting edge may be curved, convex, spear-shaped or wedge-shaped. The center of the cutting edge should be the first to engage the bone. It is used with a rotating movement with the long axis of the instrument at right angles to the bony surface. The excursion of the instrument must be limited, and this

* Report of the October, 1926, meeting of the Oral Surgery Section, First District Dental Society, New York.

position lessens the danger of slipping. The left hand or a finger of the right hand is used as a guard. When the bone has been penetrated, the outline of the desired opening is gained by prying or following down. The elevator may then be used to deliver the tooth.

Elevators have been used for many years, but never so extensively as at the present time. They are very useful if properly used, but in the hands of an inexperienced man they may do a great deal of damage. Little has been written in textbooks about their use.

A tooth is not a part of the bone supporting it, but is part of a joint and must be disarticulated, an operation which is hindered by the conformation of the bone. The elevator is a lever of the first class, with the additional force of a double inclined plane. The elevator is first applied in the interdental space and rotated on its long axis with a wedging action. This loosens the tooth from its ligamentous attachments. The tooth may then be elevated and delivered. The *process* should be used as a fulcrum—never the crown of an adjoining tooth.

In badly broken-down molars with curved roots the elevator may be used to split the tooth through the base of the pulp chamber.

The upper first bicuspids are the ones most easily fractured and in that event a small, thin elevator is used.

In cases of impacted third molars, sufficient bone over the tooth must be removed, so that the tooth may be raised to a vertical position without the use of undue force.

Dr. Schamberg's paper presented the following facts:

The hand chisel has its place, but it must not be used just to speed up the work. It does not cause less trauma than the chisel and mallet. It may be used effectively on soft bone, but dense bone must be treated as a sculptor or an artisan treats dense material—he uses a mallet. There is a place for each instrument. In cases of impactions extending over a long period of time, the bone is always dense not only the cortical part but all through it. The mallet can be used more effectively with less injury to the temporo-mandibular joint. Familiarity with any instrument promotes skill in its use, but the hand-chisel technic is not for the average man—it is too dangerous.

Kells used discs to cut off the cusps of impacted teeth or even to cut a tooth in halves to make delivery easy, but this should be done only above the gingival border. Dr. Schamberg at one time used surgical burs, but he has now discarded them, as the frictional action of the bur was bad and the bone wounds did not heal satisfactorily. A sharp chisel leaves a healthier wound.

He then showed slides of various impactions which he had removed with the chisel and mallet and explained his technic. He showed also several cases where the apex of the root lay very close to the inferior border of the mandible. These roots were removed without fracture of

the jaw by the use of the chisel and mallet. This careful dissection of the bone can be done only by this method, as the chisel is more under control and only a little of the bone is removed at a time.

Rummaging Through Paris

By Nathaniel Nathanson, D.D.S., Brooklyn, N. Y.

To the uninitiated, Paris seems to be a lawless city where Apaches roam and taxis clutter the streets amid noise and filth. Returning Americans speak variously of it, mentioning Montmartre and the nude shows. Sometimes they speak of its memorials in terms of approbation or of contempt, and often they speak of the "lovely American hotels," where one gets so little on a visit to that city! Occasionally they talk of an auto trip through the Quartier Latin and the Montparnasse or of having dined at one of the sidewalk cafes. Just lookers-on! But what a loss to him who would know!

If you speed through Paris, you can get but a superficial impression of it, while a trip leisurely made will impress you with ineffaceable memories. Walk through the Montparnasse—but dodge the Americans —and see the many studios, bookshops and stands. In the Quartier Latin one sees the homes of the immortals, some transformed into modern structures, others unchanged. Here one finds the Sorbonne, and also many curio shops. And, oh, how the latter await the innocent tourist!

I was travelling alone, hence I was free. I would stroll along through the quais, browse in bookshops and bargain for an interesting etching, woodcut or wood-carving. On one stand on the Quai d'Orsay I purchased a few old dental plates which were so crude that their interest lay in the ability of any human being to wear them.

One day I strolled into the Titus Book Shop on the Rue Delambre, just a short distance from the Boulevard Raspail. Edward Titus is an American, who retired from a lucrative law practice to collect objects of art. When he heard that I was an American dentist, he showed me the following letter, written in George Washington's own hand. The letter needs no comment.

Philadelphia, 20th January, 1797.

Sir:—

I must again resort to you for assistance. The teeth herewith enclosed have, by degrees, worked loose; and, at length, two or three of them have given way altogether. I send them to you to be repaired, if they are susceptible of it; if not, then for the purpose of substituting others. I would thank you for returning them

as soon as possible; for although I now make use of another set, they are both uneasy in the mouth, and bulge my lips out in such a manner as to make them appear considerably swelled.

You will perceive at the first view, that one cause of these teeth giving way is for want of a proper socket for the root part of them to rest in, as well for the purpose of keeping them firm and in place at bottom, as to preserve them against the effect of saliva, which softens the part that formerly was covered by the gums and afforded them nourishment. Whether this remedy can be applied to the present set I know not, for nothing must be done to them which will, in the *least* degree force the lips more than they *now* do, as it does this too much already; but if both upper and lower teeth were to incline inwards more, it would shew the shape of the mouth better, & not be the worse in any other respect.

Send with the teeth, springs about a foot in length, but not cut; also about double of that length of a tough gold wire, of the size you see with the teeth, for fastening the springs. Accompany the whole with your account, and the amount shall be immediately sent by Post in a bank note.

I am Sir

Your very h'ble Servant

Doc'tr Greenwood G'o Washington.

I asked Titus to sell this letter to me, as I felt it would be an excellent document to have in America. He refused, but said that when this letter leaves his possession, it will go to a worthy American institution.

170 Nassau Avenue

Oral Surgery In Practice

By Dr. James L. Zemsky, New York, N. Y.

Attending Suregon, Department of Oral Surgery; Chief of Clinic and Director, Surgical Periodontia Department, Midtown Hospital, New York

(*Continued from January*)

Diagnosis

Results of Treating a Case Without Correct Diagnosis

¶31. To make a correct diagnosis of a case is the most important therapeutic step. Treatment of symptoms without a diagnosis has proved to be highly unsatisfactory; such a procedure not infrequently has been followed by very unsatisfactory results. (See Figs. 74-75.)

¶32. A great deal may be gained by listening attentively to the patient's story. Instances can be called to mind by any practitioner of having obtained valuable information by just letting the *patient tell his own story.*

Fig. 74

Fig. 75

Fig. 74

Photograph of a patient, six years old, who presents a swelling and a wound discharging pus. The history relates that the patient developed a large swelling about eight months ago. A physician had made an incision at the side of the

present wound and had been dressing it ever since. The child's parents lost patience with the doctor and took the girl to another surgeon. The mandible on the affected side was roentgenographed and the condition as shown in Fig. 75 was revealed. (See ¶31.)

Fig. 75

Roentgenogram of temporary second molar with resorbed root, surrounded by an area of rarefied bone. Destruction of the bud of the second premolar also is evident.

Operative Findings. Soon after the mouth condition was cleaned up, the suppurating wound healed. (See ¶31.)

Swelling of the Face Due to Lues

¶33. Pericemental pain in the jaw may be caused by a specific lesion. A Wasserman blood test will confirm the diagnosis in such cases. (See Figs. 76-79.)

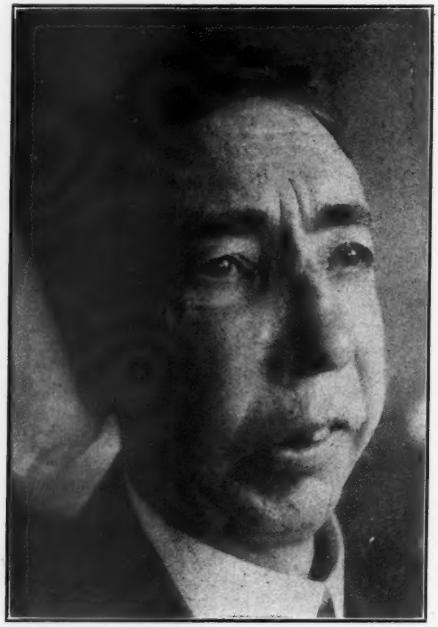


Fig. 76

Photograph of a patient, 51 years old, presenting a swelling of the right cheek and complaining of looseness of the upper teeth on that side and a swelling of the palate. Roentgenographic examination of the teeth and maxillae revealed extensive destruction of osseous structures, as shown in Fig. 77.

There being no apparent reason for such extensive bone destruction, since all the teeth were sound, a Wasserman test was made, which gave a 4+. The patient had been referred for a specific treatment before any oral operative work could be undertaken. It was later learned that he had died before the course of treatment was completed. (See ¶33.)

Fig. 77

Roentgenogram of the patient shown in Fig. 76 taken in an antero-posterior position. It reveals extensive destruction of the right maxillary bone and some of the adjacent bony structure. (See ¶33.)

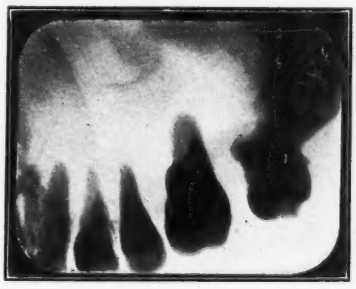


Fig. 78

Fig. 79

Figs. 78-79

Roentgenograms of the right maxillary teeth showing complete destruction of the bone. The roots of the teeth appear to project into an empty space.

A 4+ Wasserman makes the diagnosis of syphilis, which, due to clinical symptoms present, was recognized as in the tertiary stage, the destruction of the bone being the typical tertiary lesion known as *gumma*. (See ¶33.)

Baffling Cases

¶34. Wherever possible it is well to confirm the condition of which the patient complains by a thorough investigation. To be guided entirely by the patient's statement is not always safe, for often he himself is *not in a position* to give reliable information. (See Figs. 69-73.)

Incomplete Roentgen Examination

¶35. A roentgenogram showing a *portion* of a radiolucent area involving several teeth does not reveal the true condition, hence no definite diagnosis may be made from it; therefore a complete roentgenographic examination must be made, which will clearly show the extent of bone destruction. (See Figs. 80-86.)

Fig. 80

Roentgenogram showing a cystic area in the maxilla which seems to involve the entire left side of the upper jaw from the median line to the region of the left second molar. The central, lateral, canine, premolars and first molar also appear to be involved. While the condition may not be exactly as this roentgenogram shows, such a diagnosis seems to be sufficiently accurate. (See ¶35.)

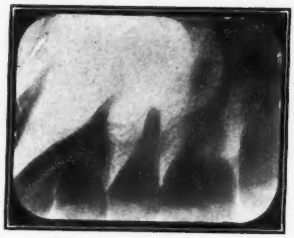


Fig. 81

Fig. 82

Figs. 81-82

Roentgenograms showing parts of the radiolucent area revealed in Fig. 80. Such roentgenograms are valueless for diagnostic purposes. (See ¶35.)

Fig. 83

Roentgenogram of the region of the left mandibular premolar. It reveals an extensive radiolucent area, indicating bone pathology. It does not, however, show the extent of the area involved and therefore is not satisfactory for the purpose of diagnosis. (See ¶35.)

Fig. 84

Roentgenogram showing an area of destroyed bone in the region of the second premolar and first and second molars. Again no definite diagnosis can be made from this film, since it covers only a part of the pathologic area. (See ¶35.)

Fig. 85

Fig. 86

Figs. 85-86

Roentgenogram in Fig. 85 reveals a diffuse area of radiolucency in the region of the right maxillary central, lateral and canine, but from this view the extent of bone destruction is uncertain. A diagnosis of the condition can be made only when the *entire* area involved is shown, as in Fig. 86. (See ¶35.).

¶36. Disorders of the lower bowels causing constipation may, in some cases, cause pain to be referred to perfectly sound and healthy teeth. In these cases an inquiry into the condition of the patient's bowels will help to arrive at a diagnosis.

¶37. It is important to remember that bleeding gums, ulceration of the mouth, mucous membrane and tonsils, as well as pain in the jaws and teeth, are a part of the general picture in patients suffering from certain blood diseases. Leukemias are some of these. Blood examination, including differential count of white blood cells, usually makes a diagnosis of such conditions easy.

¶38. Women complaining of pain in teeth and gums which show no sign of disease should be asked whether they are pregnant, for during gestation pain is quite frequently referred to the mouth.

35 East 149th Street.

(To be continued)

Togo's "Discursions"

Mr. Editor of Delicate Magazine Devoted to Digestible Dentistry

Hon. Sir:—

Month of February now occurring in abbreviated form contains several events of considerable magnitude none of which will be mentioned to intelligent readers entirely capable of recalling Hon. Birthday Dates of Cherry Tree Story, Originator of Emancipation Proclamation, and Day selected by St. Valentine as appropriate Annual occurrence.

Many subjects remain in lists of topics to be discussed in highly perplexed manner by volatile Japanese intelligence; among these, and enjoying excessively bad reputation on account of voluminous manhandling by several thousand previous spellbinders, is terrific subject of Pyorrhea, which will now be approached in prayerful spirit of respect due to great age of Hon. Topic, Thank You!

In City of Washington, D. C., Mr. Editor, is located extensive building devoted exclusively to everything under the sun except profits and admission fees. Here Hon. Average Citizen may enjoy large quantities of elbow room and expansive feeling of importance while studying anything occurring, rudimentary intelligence if present and functioning.

In National Museum, here briefly described, repose in devastating silence and utmost simplicity collection of skulls containing vast quantities of information and several thought germs which are partly responsible for following debilitated observation:

Later Mr. Neanderthal, with family and associates, who possessed entirely exclusive hunting privileges on this and possibly several other continents in year one-fourth to one-half million B.C. was entire stranger to annoyance caused by dental caries, but in many instances became acute sufferer from assorted calcareous deposits and various undesirable camp-followers resulting from same.

Observation enumerated causes several brain thoughts of possibly some importance to reverberate in great open spaces of Oriental Intelligence! Namely:—

In spite of noticeable fact that caries is most distressingly prevalent Human Disease in A. D. year of 1927 it appears as very recent and modern disaster compared to Ancient and even more dishonorable foe of comfort and Well-Being now called Pyorrhea. This Prehistoric Disease requires small Dictionary to even enumerate titles by which it has become variously designated by investigators who exhaust considerable brain substance in valiant efforts to describe symptoms and results in high-powered words of Greek and Latin ancestry. However *Pyorrhea* seems to be present-day victor with Hon. Public who have

final authority in this and most other matters, and name chosen for any disease is of far less importance than basic understanding and final results of treatments undertaken. Two last commodities seem to be principal ones which continue to evade all efforts of Hon. Dental Profession directed at complete and proper subjugation of malady now under discussion.

Ancient and dishonorable enemy of mankind appears as completely localized disturbance involving only roots of teeth and their supporting tissues—but is it? Answer in definite and easily understood word of one syllable is "No."

Consider following comprehensible facts!—Teeth are not bones! But like hair they constitute part of elementary covering of entire body usually called skin. In all ages and races, hair and teeth tend to become less healthy and noticeable as years continue to pass by without missing any innocent bystanders. Individual and racial variations will always be most noticeable in cases of both these more or less decorative, useful, and important skin appendages. But as baldness is one of the least understood disasters affecting outside of thought-dome, so also is loss of chewers by well-known Pyorrhea route one of least understood disasters causing dentists by thousands to reflect on possible desirability of opening slight repair shop for installation of quiverless fenders for Flivvers and other prominent but difficult Home Necessities.

Caries, Mr. Editor, can be stopped in practically all cases by single operation performed according to principles known as *Extension for Prevention* laid down by Hon. G. V. Black in closing years of eighteenth century; Pyorrhea up to late hour of going to press has been actually stopped only by forceps, expectoration of self-eliminating dental organs, or early and successful entrance of victim into ferry-boat personally conducted by Mr. Charon carrying passengers while running in one direction only! Although foregoing distressing facts are exactly as noted, great importance of expert care of teeth by dentist possessing Highly trained sense of touch while indulging in indoor sport of scale removal must not be overlooked. Proper massaging, brushing, and chewing efforts must be continuously and intelligently put forth by unfortunate victim of prospective tooth departure; measures advocated will not in any case serve to entirely cure relentless disease specified, but if begun early and faithfully carried out will in all but very small percentage of cases add many years of comfort, usefulness and beauty to important organs whose premature and unnecessary loss has become too lightly regarded because of great frequency of occurrence as regular part of Life Program during antiquated experiences of ancestors of all known degrees of remoteness.

In closing entirely distracted discussion of ancient subject timid prophecy is made in all seriousness that when Science finally locates

prime exciting cause of Pyorrhea it will be discovered as having main origin in unbalanced and perverted glandular function with deposits on teeth as miscellaneous dumping grounds for substances properly belonging extremely elsewhere.

Hoping you are the same,

Togo.

New York University College of Dentistry's Clinics for Alumni

Six hundred alumni of the New York University College of Dentistry, formerly the New York College of Dentistry, attended the scientific sessions, arranged by the faculty, dealing with modern developments in dental science, which were held at the College, 209 East 23rd Street, New York, December 17, 1926.

More than 1,000 alumni sought permission to attend the lectures and special sessions, but only 600 could be admitted because of lack of space, according to Dr. Holmes C. Jackson, Dean of the Dental College and Assistant Dean of New York University and Bellevue Hospital Medical College.

Six sectional sessions were conducted by members of the faculty of the College of Dentistry. Dr. Frederick L. Stanton, Professor of Preventive Dentistry, discussed *Preventive Orthodontia for the Child of Six,* illustrating his lecture with the engineering maps which he uses to plot the structure of children's mouths.

Dr. Leo Winter, Professor of Oral Surgery, took for his subject *Oral Surgery for the General Practitioner,* and Dr. John Oppie McCall, Professor of Periodontia, discussed *The Radiogram in Periodontia.*

Other special sessions were conducted by Dr. Victor H. Sears, Professor of Prosthetic Dentistry, on *Full Denture Prosthesis;* Dr. Clyde H. Schuyler, on *Partial Denture Prosthesis;* and Dr. Louis J. Weinstein, Professor of Applied Physics and Metallurgy, on *Technic of Casting Inlays.*

Visits to the laboratories and clinics of the Dental School followed the meeting. In the reorganization of the College of Dentistry, following its acquisition by New York University in 1925, various changes were made in the Clinic.

The new Root Canal Therapy Department is of special interest. This department may be compared to a hospital operating room, because all work is done under aseptic conditions. The Extraction Clinic has been combined with the Oral Surgery Department, and new quarters provided where operations are conducted under the same conditions

as in a hospital. A Diagnostic Clinic has been organized, in order to give patients a general examination before any dental work is done.

The Clinic of the New York University College of Dentistry is thought to be the largest in the United States. Approximately 300 operations a day are recorded and last year 30,500 different patients were treated there.

At the general sessions, Dr. Emanuel D. Friedman, Clinical Professor of Neurology, lectured on *Pain,* and Dean Jackson discussed the new Dental College. A meeting of alumni followed for the purpose of reorganizing the Alumni Association of the Dental College. Members of the New York College of Dentistry were made associate members of the new association formed since the Dental College became part of New York University.

The 1926 Tournament of the American Dental Golf Association

One of the most interesting and enjoyable events which took place during the Seventh International Dental Congress in Philadelphia in August, 1926, was the Seventh Annual Tournament of the American Dental Golf Association.

The prizes and trophies were on display in the Commercial Museum during the entire week of the Congress. Here, also, forty-eight new members were received. On Sunday, August 22, preceding the tournament, the annual Calcutta Pool Dinner was held in the Penn Athletic Club. This occasion proved most successful, ninety taking part. The play came off on Friday, August 27, at the Manufacturers' Country Club. A most wonderful course and a beautiful day encouraged ninety-two golfers toward striving for the best scores. The winners were:

G. T. Gregg, Pittsburgh, Pa.—Champion
Robt. N. LeCron, London, England—Runner Up
J. J. Hillsley, New York—Handicap Winner
Edward F. Lafitte, Philadelphia, Pa.—Runner Up

Class "A". Low Gross—A. M. Yessler, Woodstock, Ill.
Runner Up—E. W. Browning, Salt Lake City, Utah
Low Net—Reinhard Nell, Philadelphia, Pa.
Runner Up—W. W. Powell, Philadelphia, Pa.

Class "B". Low Gross—A. J. Heffernan, Wilkes-Barre, Pa.
Runner Up—Harvey Schwalm, London, England
Low Net—A. E. Webster, Toronto, Canada
Runner Up—A. L. Orr, Philadelphia, Pa.

Class "C". Low Gross—H. E. Beiser, New York
Runner Up—Frank J. Erbe, Waterbury, Conn.
Low Net—Harold R. Mead, Schenectady, N. Y.
Runner Up—A. L. Mulford, Philadelphia, Pa.

E. F. Lafitte, Philadelphia, turned in the best gross score for morning play. E. W. Browning, Salt Lake City, had the best gross score for afternoon play.

A business meeting of the Association was held at noon of the day of the tournament at which O. W. White of Detroit was elected Vice-President, Thos. P. Hinman of Atlanta re-elected Secretary-Treasurer, and H. E. Kelsey of Baltimore a director. Frank M. Casto of Cleveland concluded the second year of his three-year term as President.

The 1927 Tournament will be played in Detroit. All announcements and arrangements will be published by the various dental publications, and it is especially requested that all golfers or contemplating golfers keep on the lookout for them.

DENTAL LAWS

Summary of Dental License Requirements Throughout the World

By Alphonso Irwin, D.D.S., Camden, N. J.

TIBET

No accurate, official or recent information about the practice of dentistry or license requirements—if any—are operative in this country. Very little is known about the habits, customs, vocations or government of Tibet.

TIMOR ARCHIPELAGO

This archipelago is part of the Dutch East Indies; consequently Dutch credentials are accepted. See the Netherlands for the Dutch colonial regulations.

TIMOR (Portuguese)

This is the eastern part of the Malay Island of that name, off the north coast of Australia, Holland having the western part. Portuguese credentials are accepted. See Portugal for the colonial regulations operative in Portuguese Timor.

TLAXCAL

This is a state of Mexico. See Mexico for the Federal Dental Law and license requirements. New dental legislation is pending in Mexico.

TOBAGO

This island is a part of the British West Indies. See Trinidad for other information. For full details address the Governor, Sir Horace Archer Byatt, K.C.M.G., Port au Spain, Trinidad, British West Indies.

TOGO or TOGOLAND

Formerly German, divided by mandate between French and British. No official assurance of any dental license regulations; part of the Gold Coast administration, capital, Accra.

TONGA ISLANDS

The Tonga Islands are in Oceania and are under the British flag. See the British Empire for colonial regulations; also the Dentistry Acts of the United Kingdom of Great Britain, 1921-1923. These islands are also known as the Friendly Islands.

TONKIN (Indo-China)

This is one of and the principal State of French-Indo China under French Protectorate. Regarding practice of dentistry in the Colony here this is the same as France and the requirements are the same. In the regulations governing the practice of dentistry in France, it is necessary to pass before an association in France and receive a diploma from the Faculty of Dentistry at Paris. It would probably be difficult for a dentist to install himself here as there are three French dentists in Saigon alone at present, and only 4,601 European residents in French Indo-China.

For further details, address Gov.-Gen'l Alexandre Varenne, Hanoi (Tonkin), Indo-China.

Verified.

TRANSJORDINIA

Transjordinia, which is located east of the Jordan river, is a geographical division which exists in Statesmen's imaginations rather than as an established fact. It is a wild, mountainous unproductive country inhabited by warlike tribes who have never been subdued. At the time of our visit to this region it was not considered even safe for a stranger to be in the vicinity of the place. It has been assigned to the British mandate. No dentists are needed, and no alien dentist would care to even visit there.

TRANSJUBA

Transjuba is under Italian control, otherwise known as Jubaland. It forms a part of Italian Somaliland, which extends along the Indian Ocean from the Gulf of Aden to the Juba river. Few whites live here amongst the 650,000 population, the climate being unhealthy. See Italian Dental Law of 1924 for dental license requirements.

For other details address Cesare de Vecchi, Governor, Mogadishu, Italian Somaliland, East Africa.

TRANSVAAL

Office of the Transvaal Medical Council, 81a Von Brandis Street, Johannesburg

Anticipations in regard to a Union Bill were not realized. Serious

industrial troubles arose at the beginning of the year and so much time was spent by the House discussing these that necessary measures, among them the Union Bill, had to be dropped.

The registration of dental qualifications, which means the giving to the holders the right to practise, is the same. Briefly, it may be said that we accept approved qualifications of Great Britain and Ireland. I use the word *approved,* for we do not accept for registration the large number of dentists who have recently been placed on the Register of Great Britain, sine curriculo, under the Dentists Act, 1921. In regard to foreign qualifications, none has been accepted so far, but it would certainly be a condition of acceptance that full rights to practise must be given to dentists holding British qualifications in the country where the applicant has obtained his degree. An exception is, however, made in the case of British subjects, South African by birth or domicile, who may obtain a foreign degree. The degrees which have been so recognized are: D.D.S. (Penn.), D.D.S. (Mich.), D.M.D. (Harvard), held in conjunction with the diploma of the respective State Board and Tandarts, Holland. I enclose forms marked A and B. A must be submitted by the ordinary class of applicant, B by those who claim the special privilege of registration on one of the qualifications I have just mentioned.

Dental Law Operative in the Provinces of the Union of South Africa

Be It Enacted by the King's Most Excellent Majesty, the Senate and the House of Assembly of the Union of South Africa, as follows:

1. Notwithstanding anything to the contrary in any law in force in any province governing the registration of medical practitioners and dentists, a registration certificate may be granted to any British subject who

(a) having been born in any part of South Africa included in the Union; or

(b) being domiciled in the Union when he commences his professional studies and having remained during the prosecution thereof so domiciled—has obtained a medical degree, diploma or certificate or (as the case may be) a dental degree, diploma or certificate, after examination by any university or State examining Board.

Provided that

(i) the curriculum and standard of examination required for such degree, diploma or certificate are not below those prescribed as professional qualifications for registration as a

medical practitioner or dentist (as the case may be) under the law of the province in which application is made for the registration certificate; and

(ii) such degree, diploma or certificate entitles him as far as professional qualifications are concerned to practise as a medical practitioner or dentist (as the case may be) in the country in which that university or State Examining Board is situated.

2. Notwithstanding any provision of any law governing the registration of medical practitioners or dentists in any province, a registration certificate entitling the holder to practise, as a medical practitioner or dentist (as the case may be) in that province may be granted to any person who produces proof that at the commencement of this Act he was so registered in another province.

3. A registration certificate granted under section one or two of this Act shall entitle the holder thereof to practise as a medical practitioner or dentist (as the case may be) in the province in respect of which it is granted, and save as is specially provided in sections one and two of this Act the law in force in that province governing the registration of medical practitioners and dentists shall apply.

4. This Act may be cited for all purposes as the Medical Practitioners and Dentists Registration Amendment Act, 1919, shall be read as one with the laws governing the registration of medical practitioners and dentists now in force in the several provinces, and shall commence and come into operation on a date to be notified by the Governor-General by proclamation in the Gazette.

Date of Official Enclosures, January 14, 1925.

TRINIDAD, B. W. I.

The Requirements for the Practice of Dentistry in Trinidad and Tobago

The Medical Board here, who grants the necessary license, does not exact an examination. A diploma or certificate from a University or any bona-fide dental college of the United States or Europe is accepted by said Board.

The fees in dental practice here seem considerably less than would generally be charged in the United States for similar work, and the population does not include a large proportion of wealthy people. However, the dentists who practisè here appear to have plenty of business and make a good living.

Verified April 20, 1923.

PRACTICAL HINTS

This department is in charge of V. C. Smedley, D.D.S., and George R. Warner, M.D., D.D.S., Suite 1206 Republic Building, Denver, Colorado. To avoid unnecessary delay, Hints, Questions and Answers should be sent direct to them.

NOTE—Mention of proprietary articles by name in the text pages of the DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule. This Department is conducted for readers of the DENTAL DIGEST, and the Editor has no time to answer communications "not for publication." Please enclose stamp if you desire a reply by letter.

Editor Practical Hints:

I am seeking information regarding a patient, male, 32 years of age, who has very sensitive teeth on the incisal and occlusal surfaces. He has never had an operation of any kind and seems to be in good health. The teeth are in good shape, but have not been x-rayed. He has tried various mouth washes and dentifrices, but with no definite result.

I should appreciate very much if you can help us in this case and shall be glad to work as you suggest.

C. R. A.

ANSWER.—Teeth that are abnormally sensitive on the occlusal and incisal surfaces are usually teeth that are abraded through the enamel, exposing more or less extensive surfaces of sensitive dentine. The sensitiveness can be largely relieved by the application of silver nitrate for the posterior teeth, by burnishing it into these dentinal surfaces with a hot burnisher (it may be necessary to nerve-block for this purpose), or by protecting the cheek and tongue with cotton rolls and having the patient close the teeth and hold with a firm, steady pressure on two strips of blotting paper that have been moistened with saturate solution of silver nitrate. For the anterior teeth, to avoid discoloration, with a hot instrument burnish either formalin or chloride of zinc into these exposed dentine surfaces.—V. C. SMEDLEY.

Editor Practical Hints:

I am treating a case of periodontoclasia for a woman about 43 years of age, and after about two months of treatment, which consisted of x-rays, scaling, irrigation of pus pockets, massage, prevention of

traumatic occlusion, carefully balanced diet (orange juice), and tests for acidity, I have obtained good results. The investing tissues have resumed their normal appearance with absence of pus upon digital pressure. But the teeth in question, right and left centrals and laterals, both upper and lower, have mobility. I thought it would be helpful to wire these teeth to prevent this.

Will you kindly advise what to do in this instance? If wiring is necessary, what kind of wire would you use? Or what other attachment would you prefer?

In addition to the above-mentioned treatment, would you advise the administration of vaccine in the cuspid regions?

W. F. W.

ANSWER.—It would seem that you have done everything possible in the treatment of the case of periodontoclasia which you cite.

In answer to the question about wiring, I would say that this is indicated in only very rare instances. If it is possible to obtain the results which you describe, the mobility ought not to be great enough to make wiring advisable. Wiring at best is not very satisfactory, for it requires constant renewing and has a tendency to pull the teeth out of their normal positions. I have come to the conclusion that teeth which are worthy of being retained can be made immobile enough by completely relieving occlusion. If this is done about twice a year over a period of two years, the teeth will usually become so immobilized that they can be allowed to resume their normal function.

I believe the consensus of opinion among periodontists is against the use of vaccines. The result, if any, is extremely evanescent.—G. R. WARNER.

Editor Practical Hints:

What means do you use in preparing cavities at the gum margins of teeth to make the work easy for the patient? I am not satisfied with the injection I am using and shall appreciate your help.

J. A. S.

ANSWER.—We use three methods of producing anesthesia for cavity preparation. If anywhere in the region of the six anterior teeth and sometimes the ten anterior, we use a high infiltration or an interosseous. The high infiltration is made by injecting deeply into the bone near the apex of the root, holding the finger of one hand over the soft tissues and palpating or rubbing the tissues as the anesthetic goes in. This will, in the large majority of instances, give a very good anesthesia, which will last at least fifteen minutes, which is usually long enough for the preparation of a marginal third cavity. You are

undoubtedly familiar with the interosseous method of injection as well as with the conduction anesthesia or nerve block. Nerve block is probably the simplest for all of the teeth of the mandible. The interosseous gives a longer anesthesia than the infiltration, therefore it can be used for a complicated preparation, even for a preparation for a porcelain jacket crown.—G. R. WARNER.

Editor Practical Hints:

I am enclosing some pictures which, on account of the extreme abnormality, may interest many of your readers. The patient is a strong, robust German, who says the tooth has never bothered him in

the least. There is no outward sign of the tooth being where it is.

I should appreciate some opinions as to what should be done in the case.

E. L. C.

ANSWER.—It is my personal opinion that where the patient is vigorous and healthy and is conscious of no discomfort nor injury from the impacted tooth, it might as well be allowed to stay where it is, but if he is suffering from possible focal infection or there are symptoms that might be attributed to a nerve pressure occasioned by this impaction, then, no doubt, it should be removed. But possibly you should recommend its extraction anyway as a potential future cause of disturbance, for a number of different investigators state definitely that a very large percentage, if not in fact all, of the areas around the crowns of impacted teeth will grow cultures.—V. C. SMEDLEY.

Editor Practical Hints:

I have a patient about forty years of age who has worn an upper plate successfully for several years. Three years ago she resorted to a lower plate and uses the lower plate successfully so far as mastication

is concerned. She has had several plates of various widths, all of rubber. The gums are comfortable under the plates, but ever since getting a lower plate she has complained of the margins of her tongue being sore and feeling hot and hurting when eating fruits or sweets. She is in good health. The reaction of her saliva is about neutral. The plate she is now wearing is very smooth, special care having been taken to leave no roughness that would be irritating.

Will a gold-plated vulcanite plate give the same results as a solid metal plate so far as the tissues are concerned?

I shall appreciate a reply, as I want to do something for her as soon as possible and am much in need of advice.

H. H.

ANSWER.—I had a case similar to this a few years ago and I simply made the patient a new plate, setting the teeth somewhat farther apart in the molar and bicuspid region than I would otherwise have done, and also opening the bite a little more than I would have if this had been a normal case. Both of these things were done for the purpose of providing tongue room. The patient immediately reported a great improvement in the tender, burning sensation in her tongue, but at the last report she was still complaining somewhat of the same symptoms.

I knew of nothing further to do for her, but should appreciate it if some of our readers have any further knowledge or advice as to how to handle this particularly annoying type of case.—V. C. SMEDLEY.

Editor Practical Hints:

I am writing you for information about the following case:

The patient, 73 years old, male, with all teeth extracted, was having trouble in the maxillary sinus region. He was sent by his physician back to the man who extracted the teeth. The latter took x-rays and found something lodged up in the jaw. The case was referred to me, and upon examination I found a fistula in the first molar region, which had never healed after extraction.

I took further x-ray pictures and diagnosed the foreign object as a piece of bone. I then operated and removed the piece of bone, which had been pushed up into the maxillary sinus. I found also that the entire floor of the sinus was necrosed, old, foul pus and polyps being present. I then curetted the sinus thoroughly and because of the size of the opening decided to irrigate and pack from the wound in the mouth.

The patient was in the hospital ten days, no complications appeared and all is fine, except that the wound fills in very slowly. I am irrigating daily with Dakin's solution and packing with gauze soaked

in guaiacol and olive oil. The old packing always looks good upon removal, and a slight hemorrhage always follows, but the wound does not seem to fill in the way it should. Four weeks have now passed since I operated, and I really cannot notice any appreciable difference in the size of the wound.

Is there any other drug I could use or other form of procedure that might hurry it up, or is it a case of keeping at it?

H. H. F.

ANSWER.—The wound resulting from your radical maxillary sinus operation will not close as long as you pack the opening, unless you reduce the size of the packs materially upon each succeeding application. There is a strong tendency for these sinus openings to close. If it does not close by the reduction of the size of the pack, it would be wise to do a plastic operation for closure, which will be successful if the sinus is free from infection.—G. R. WARNER.

Editor Practical Hints:

I am mailing to you plaster models of upper and lower teeth. The patient is a young lady, 13 years of age. I am seeking information, as I am not sure what would be the best procedure.

Please note that the bite is crowding the upper centrals out of line. My idea is to raise the bite by inlays or amalgam fillings in the bicuspids and molars, regulate to get teeth back in position, place gold inlay in upper central (broken incisal edge) and face this inlay with synthetic porcelain.

J. J. T.

ANSWER.—This case should by all means be referred to a skillful orthodontist. They have methods, I am sure, of elongating the posterior teeth, thus correcting the extreme overbite without mutilating the teeth and endangering the vitality of the pulps, which are very large in such young patients.

Your plan to restore the broken incisal angle with a gold inlay with a silicate cement facing is all right, though a baked porcelain inlay would, no doubt, serve better for the labial insert than the silicate, and you should postpone the doing of this for possibly five or six years, when the pulp will have had time to recede sufficiently to make a proper preparation for retention feasible without endangering the pulp's vitality. In many such cases it is advisable to make a temporary cap enclosing the incisal third or half of the tooth and cement it to place for whatever number of years you may deem it wise to wait. With such a protective cap it is well either to cement it entirely with a sedative cement or to place a protective cap of the sedative cement over the exposed dentine to protect it and the pulp through the dentinal tubuli from the irritation of oxyphosphate cement.

In some cases, if the fracture does not extend too high, the incisal edge can be gradually ground off as the pulp recedes and the tooth can be elongated enough by orthodontia to even it up with the other teeth.—V. C. SMEDLEY.

Editor Practical Hints:

Some time ago I made an upper partial with clasps on the cuspids, all the anteriors being present. The denture was worn with no inconvenience for about three months, when it began to gag the patient.

I relieved the posterior for possible nerve-pressure, with no result, and eventually trimmed out the palate until there was little more than a saddle over each ridge, still obtaining no relief.

Since then the patient has had one or two other appliances made, just what I don't know, but the result was the same. I am considering some similar appliance, but am at a loss as to how to prevent a recurrence of the gagging. The plate, even after the palate had been trimmed out, gave excellent service.

With a view of throwing a little possible light for you, although it helped me none, I might mention the following facts:

The patient, male, 36 years old, was injured during birth by forceps, and a nerve twisted in the neck, which has caused a decided halt in his walk, no trace of specific infection, no trace of focal infection, gums healthy, sedentary occupation. He informs me also that when the gagging first became noticeable, if a bit of chewing gum were kept in the mouth, it relieved the gagging, nor did the plate ever gag him during the time he was eating.

R. J.

ANSWER.—I should judge that this plate has a tendency to drop down slightly at the back with the effect of breaking contact with the distal border of the plate across or adjacent to the soft palate.

I find that with these gagging patients it is almost invariable that if an adaptation can be secured which will maintain the plate in a position of fixed or complete closure of the distal periphery, there is no serious difficulty, at least after a few days' persistence on the part of the patient.

Just how to secure this desired stability on an upper with the teeth gone back of the cuspids is often quite a serious problem, requiring study and planning of the individual case, but it can usually be accomplished in one way or another. The method of last choice perhaps would be the removal of the remaining six anterior teeth and the making of a full denture, where a definite suction can be established. —V. C. SMEDLEY.

CORRESPONDENCE

Editor, Dental Digest:

I should like very much to be permitted to speak a word through the columns of THE DENTAL DIGEST relative to the virtues of the surgical spear drill as compared to the chisel and mallet procedure in oral surgery. The position which your reviewer has taken in criticism of my work *A Manual of Exodontia* in the December DIGEST is based, I believe, upon an erroneous conception of my technic.

I believe that your readers may be interested in having me clarify the situation and explain the principle behind my technic, and why I am so enthusiastic in its advocacy for the removal of recently fractured roots, completely embedded roots and impacted teeth as a preliminary step for the application of lever force.

In the preface of my book I make the statement: "Extraction, with a minimum of trauma to both the soft and the bony tissues, is maintained as the supreme objective of the operator."

I believe that I have made an effort in my *Manual* to put into words the principles of the steps governing my technic for the attainment of this end. I did not write my book until I had satisfied myself by broad experience of the virtues of the flat spear drill. I found that the frequently unpleasant postoperative conditions induced by the chisel and mallet were definitely minimized.

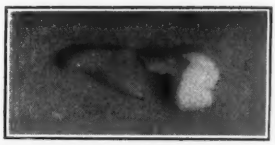
In the past, dental operators made considerable use of the engine-driven cutting instrument for surgery of the jaw. Gradually this procedure gave way to the chisel and mallet. The reason for this was, as your reviewer states, that the friction of the bur against the bone caused heating and the results were quite disagreeable at times. Those operators who could avoid overheating did not discontinue the engine method. Dr. C. Edmund Kells is one of those noted operators.

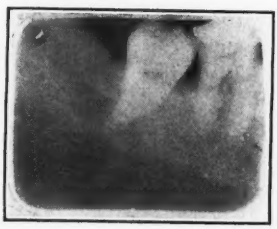
For myself, I must say that for many years I was a staunch advocate of the chisel and mallet technic. It is true that the surgical bur heats bone when one desires to cut a stretch of bone. Naturally, unless one interrupts one's operation frequently, heating of bone in this manner must take place. After a while I began to feel that there was something not so very heroic about the idea of causing blow after blow to be rained upon a patient's jaw. I was encouraged in my belief by the feelings of my patients as well as of my fellow practitioners with whom I came in contact. It was then that I commenced to use the flat spear drill with the beveled end.

I found that I could direct it for a short, extremely short, period and cause an opening to be made in the bone without causing any appreciable heat. I found that if I desired to cut a stretch of bone, I could make a chain of closely approximating openings and then connect up these openings with a suitable sharp instrument, such as the Crane pick or a sharp Lecluse type of lever. Once these openings have been entered, it is a very simple matter to cleave off the bone that we are desirous to remove. I became so enthusiastic about my results that I decided to place my technic at the disposal of the profession. The very generous approval with which this has been received has been very gratifying to me.

The use of the engine drill and saw has a very general application in bone surgery today, with a special application to plastic bone surgery of the jaw. I have witnessed many operations for the open reduction of fractures in the lower extremities. I have seen the surgeon use the drill and insert silver screws into the metal plate and embed them permanently into bones after proper reduction at the line of fracture. These operations go on all the time and the technic is approved by general acceptance as sound in the theory and experience of the profession. The drill is used by oral plastic surgeons in order to create openings in the mandible through which silver wire or other suitable material is passed in order to keep badly fractured segments of the jaw in position.

The drill is used by such men as Dr. Albee for the removal of portions of ribs and of the tibia for grafting to the mandible. In these operations, of course, a stream of cold normal saline is played upon the drill and bone to prevent overheating. There is nothing to prevent my technic being used in the same way, but thus far I have not found





it necessary to do so because of the fact that, as I have already stated in this communication, the drill does not stay long enough in contact with the bone to produce heat. Dr. Anapol, associated with Dr. Albee, assures me that the engine-driven drill in their oral plastic surgery has been an unqualified success, and I cannot see in what respect the reviewer in THE DENTAL DIGEST can take exception to my technic of the drill in so far as the principles of good surgery are concerned.

In the accompanying photographs I desire to show a typical case of third molar impaction, on which I recently operated with my drill technic. By splitting the impacted tooth into two sections I shorten the operative time and reduce surgery on the jaw itself by working on the tooth instead. Results count. I believe I am getting better results with such impactions all the time.

M. HILLEL FELDMAN.

Dr. Percy R. Howe
Boston, Mass.

Dear Dr. Howe:

Having read the first of the series of articles you are presenting through THE DENTAL DIGEST, as well as others in previous publications, I am wondering if you would be so kind as to advise me in the following:

I frequently have patients presenting with canker sores, which recur quite often, in size from half as large as the head of a match to twice as large, and in exceptional cases perhaps half as large as a dime. Usually one treatment with aromatic sulphuric acid clears them up, but they recur. Can you advise me of any diet which is known to be a cause, or of any which will prevent the recurrence? Any suggestion you can offer will be much appreciated.

S. M. H.

Dear Doctor:

Because of the pressure of his correspondence, Dr. Howe has turned over to me your letter of January 6th, saying that many of your patients have recurring canker sores which are very painful, and has directed me to answer it as follows:

In cases where one does not know the detailed personal history, one can only make suggestions which will be of value in all cases. The recurrence of these sores may indicate a deficiency of one or more of the important food elements or a relative excess of one or more such elements.

While the treatment you are giving may yield prompt relief, it would be well to get these people onto a diet including fresh fruits, especially oranges. If they find the oranges acid, they can often relieve that by taking plenty of water with each orange. Some people can take oranges with a meal without disturbance, while others can take them only between meals. In general, it may be said that an orange and a cereal, taken at the same time, do not agree well together.

The diet should contain also liberal quantities of fresh vegetables, especially carrots, cabbage, celery and lettuce, all of which should be eaten uncooked. Young carrots are delicious raw or older carrots may be grated as part of a salad.

It is especially desirable to keep the grains and cereals low.

There are comparatively few cases where special treatment is needed. What is most required is to return to sound principles in all cases.

GEORGE WOOD CLAPP.

DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce, care of THE DENTAL DIGEST, 220 West 42nd Street, New York City.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE, CARE THE DENTAL DIGEST, 220 WEST 42ND ST., NEW YORK. YOU MAY HELP A NUMBER OF GIRLS WHO ARE JUST BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. OR IF YOU NEED HELP NOW WRITE TO ELSIE PIERCE—SHE'LL HELP YOU.

Dear Miss Pierce:

I am opening a new office with very modern equipment as to both operative work and bookkeeping. I should appreciate your outlining the routine duties of a dental assistant. The office will have but one operator and only one operating room.

What hours should the assistant work?

When and for how long should she take her vacation?

What salary should be paid at the start, and what should be the scale of increase in salary?

What method do you use for recalling patients?

When are statements sent?

When, if statement remains unpaid, do you follow up?

I should appreciate your answering these questions and also giving me any further information you may think useful. I want to thank you for your kindness and assure you of my interest in your splendid column.

Dr. S., Los Angeles, Cal.

ANSWER:—To outline the routine duties of a dental assistant in full would take much space and time. I shall endeavor to touch upon the principal phases of office routine that can normally come under the jurisdiction of the assistant.

(1) Supervising the appearance and cleanliness of the office—put-

ting the final touches to the work of the maid, cleaning woman or janitor in seeing that corners have not been neglected, furniture left dusty or disarranged, window shades left askew, curtains neglected, magazines and reading matter kept up to date and in order, flowers kept fresh and attractively displayed, etc.—all this for neatness and appearance, not forgetting her own uniform, which should always be spotless.

(2) Receiving and dismissing patients, arranging appointments, caring for telephone calls, etc.

(3) Assisting at the chair—preparing the patient for the dental operation, changing headrest cover, placing napkin or apron, placing mouth wash or warm water solution at hand, preparing instruments and medicaments to be used, or materials such as waxes, plaster, compounds, cements, amalgam, etc. Some dentists require their assistant to stand by ready to hand every instrument and help at every step; others prefer to work without the assistant at their elbow every moment. After each patient all traces of the previous operation must be cleared away, instruments sterilized and everything made ready for the next patient.

(4) Developing, mounting and filing x-rays, and caring for the solutions, etc.

(5) Assisting in the laboratory—piecing, waxing, boxing and pouring casts; making gold inlays, direct and indirect; packing, vulcanizing and finishing vulcanite dentures; casting gold crowns, saddles, plates, etc.

(6) Looking after the necessary bookkeeping, charts, records, correspondence, etc., purchasing supplies, and banking.

As you see from these requirements, the versatility of the dental assistant is endless; her tasks are many and varied. To sum up briefly, a competent assistant should be able to care for every detail in the office that is not operative procedure or work in the mouth.

"What hours should the assistant work?" is a difficult question to answer. However, may I say that every dental office should have a schedule of working hours which can be adhered to within reason. Dentists and dental assistants are human beings just as well as are others who are engaged in varying occupations. Hours from 9 a. m. until 5 or 5:30 p. m. are reasonable and the usual schedule in the better type of office. These are the hours during which patients are received by appointment. The dental assistant should reach the office fifteen minutes before the opening hour so that she may see to it that all is in order, may properly ventilate the office and change her street clothes for her uniform. When the day's work is done at five or five-thirty, it will be necessary for her to devote from fifteen minutes to a half-hour on sterilizing and putting away instruments, checking up the day's work, appointments, charts, records, etc., turning off the water, electric

current, etc., and in so far as possible leaving everything in order for the next day. I believe that the assistant should have one afternoon off each week; it keeps her fresh and interested in her work. The dentist should realize that "all work and no play makes Jack a dull boy"—this applies to Jill as well.

Regarding the dental assistant's vacation, that is entirely a personal matter to be decided between the dentist and assistant. The usual vacation period in any occupation is two weeks, but in many dental offices a month is established as the time, usually in the warmest summer period when the patients are away and there is little or nothing to do.

Regarding salaries, that also is a personal matter depending on the type of office and locality and principally on the dentist, as to whether he prefers to pay for adequate service or to fool himself into thinking that he can get a dollar's worth of service for fifty cents. "Cheap" help is expensive at any price; brains and ability are paid for no matter where employed. A young woman of ability does not have to work in a dental office for less than living wages; she will find a market for her service elsewhere at a commensurate salary. Increases in salary always depend upon the appreciation and willingness of the employer to recognize loyalty and ability on the part of the employee. However, we all need encouragement and no one was ever known to be harmed by being appreciated. It is cheaper and more satisfactory to increase the salary of an assistant who has been in an office for some time and understands the routine and the work than to waste hours of time, which cost money, replacing her by an unknown quantity whom you must train to your office procedure and wishes.

Regarding methods of recall, there are many types of personal cards and letters for that purpose. The best form is the statement that the time has arrived when the teeth should be examined again. Whatever is selected should be neat, brief, to the point and respectful.

Regarding statements, in every carefully conducted office, statements are sent so as to be delivered on the first of the month. In many offices the statements are sent on the first for the work completed to date. If no payment is forthcoming, it permits the dentist to "slow down" until such time as the patient shows a disposition to consider the account. If statements are not answered by the tenth of the month, a reminder by letter or telephone should be made and should be followed up in a few days if no answer has been received. Whatever arrangements regarding finances have been made by the patients at the first sitting should be adhered to. If they have been told that bills are sent the first of each month, no departure should be made from that procedure, and the patients will expect to receive them and pay them. There are exceptions to all rules, and the dentist should be the final judge as to the methods to be used by the assistant.

Educational and Efficiency Society

FOR

DENTAL ASSISTANTS, FIRST DISTRICT, NEW YORK, INC.

The regular meeting of the Educational and Efficiency Society for Dental Assistants, New York, was held at the Academy of Medicine, 103d Street and Fifth Avenue, New York, on Tuesday evening, December 14, 1926. This meeting marked the close of another year of successful activity in the work of educating the dental assistant to the finer and nobler aspects of her calling and aiding her to the efficient performance of her duties and the appreciation of her responsibilities in her service to the dental profession. In the successful conduct of classes under the direction of prominent dentists on the various phases of dental assisting, and in the activities of the Clinic Club in presenting practical demonstrations of efficient office-management, the Society has made huge strides toward higher standards of education and training for dental assistants.

Donald Page, D.D.S., was the essayist and spoke on *Nutrition as an Important Factor in Prevention.* Dr. Page stressed the importance of prevention as well as cure in dentistry, naming the five fundamental laws of nutrition and elaborating on the need and value of natural foods. His talk was very instructive and was presented in a clear, concise manner. *Paradise in the Pacific* was the title of the address presented by the second speaker, Dr. Cyril Strife, who told of his trip to Hawaii and of his experiences during his two years of service in dental work there. His talk was most interesting, affording his audience a delightful half-hour.

Mae L. Bennett, Director of Classes, announced that the series of lectures on Telephone Courtesy had been brought to a successful close, as well as classes in X-ray Assistance and Care of Dental Equipment, and that a series of lectures on the Selection of Teeth was being held under the direction of Dr. George Wood Clapp. These lectures included *The Classification of Face Forms and the Use of This Knowledge in the Selection of Teeth,* and a clinic on *How Artificial Teeth Are Made.*

The Librarian reported the addition to the library of several valuable articles on the work of the dental assistant and urged the cooperation of the members in building up its contents. The Library contains many articles taken from dental publications relating to the duties of the assistant in the dental office, as well as a Scrapbook of suggestions and hints for efficiency and short histories of dental equipment, instruments, etc. This material is available to all members of the Society. Anna Neulinger, the Librarian, may be reached at 535 West 110th Street, New York, or at any regular meeting of the Society.

At the regular meeting of the Educational and Efficiency Clinic Club held at the office of Dr. B. Tepper, 489 Park Avenue, New York, on December 20, 1926, Dr. Herbert L. Wheeler presented a clinic on the proper handling of plaster and the pouring of plaster casts. Dr. Wheeler spoke first of the origin and composition of plaster of Paris and then demonstrated the piecing of plaster impressions, the preparation of modeling compound impressions and of plaster impressions preparatory to pouring, and the pouring of plaster casts. The members derived much benefit and instruction from the clinic and from the general discussion which followed.

The Clinic Club meets regularly on the third Monday evening of each month, September to May, inclusive, when the different phases of the work of the dental assistants are demonstrated and discussed. All members of the Educational and Efficiency Society for Dental Assistants, First District, New York, are welcome and are urged to join in the activities of the Club. Jean Tallaksen, Acting Director, 24 State Street, New York, will be glad to supply further information.

At the February meeting of the Educational and Efficiency Society for Dental Assistants, First District, New York, on February 8, 1927, at 8 p. m., at the Academy of Medicine, Fifth Avenue and 103d Street, New York, Mr. H. G. Hawn, lecturer, will speak on *Personality* and Mrs. Lillian R. Sire, Director, Division of Aliens, New York State Department of Labor, will discuss *The Alien Problem.* A cordial invitation is extended to the members of the dental profession and to their assistants.

The next meeting of the Educational and Efficiency Clinic Club falls on February 21, 1927, at 7:30 p. m., at the office of Dr. B. Tepper, 489 Park Avenue, New York.

Montreal Dental Assistants Association

The regular monthly business meeting of the Montreal Dental Assistants Association was held at 1570 St. Hubert St., Montreal, on December 20, 1926. Mme. Guay, President, introduced Dr. E. Charron, Professor of Anesthesia, University of Montreal, and member of the Advisory Board of the Society, who spoke on the necessity for the dental assistant becoming more efficient in the services she is rendering.

After the lecture Miss R. U. Ratner, Secretary, read the correspondence, including a letter from Juliette A. Southard, President of the American Dental Assistants Association, giving valuable sugges-

tions and wishing the officers and members to "keep up the good work" during the coming year.

The meeting was well attended. A cordial welcome is extended to dental assistants to attend the clinic classes which are given twice a month, free, by well-known men of the profession.

The Montreal Dental Assistants Association held its first Clinic Class at McGill University on Monday, December 13, 1926. The guest speaker was Dr. George S. Cameron, Professor of Prosthetic Dentistry, McGill University, who spoke on the subject *Chair Assistance.*

Dr. Cameron said that formerly the position of dental assistant was filled more by accident than by any prearranged plan, but now the importance of the work is recognized and several of the schools have established training courses. He mentioned some of the requirements of an assistant, such as a pleasing manner when telephoning, and the ability to care for office records and supervise the office and equipment.

There are two types of dentists, those who prefer to do all the work themselves and those who require expert assistance, he said. For the former the dental assistant may gradually extend her service until her employer realizes the help that she may be to him. In the latter case the dentist will demand efficiency from his assistant and consequently she must have adequate training.

The speaker concluded with a demonstration of the handling of plaster, cements, alloys, wax and compound.

Dr. Kells Talks to Dental Assistants*

(Continued from January)

The most necessary attribute of the assistant, and the secretary as well, is that of truthfulness. No matter how valuable in other ways, no matter how efficient, no matter how gracious, if she can't look her employer in the eye when she makes a dubiously-sounding statement, instantly convincing him that, dubious-sounding or not, if it comes from her it must be the truth—if she can't do that, then she is not the girl for such a position.

The next in importance is perfect faithfulness and loyalty. Faithful and dependable, so that when the employer says, "Miss Sally, please see that so-and-so is done tomorrow," he can dismiss the subject from his mind, because he knows that Miss Sally will surely either see that it is done or do it herself.

* An address delivered at the annual luncheon of the American Dental Assistants Association, Philadelphia, August 21, 1926.

Cheerfulness is, of course, indispensable. A cheerful girl about the place—what a pleasure, because no one knows better than the lady assistant herself, who is behind the scenes at all times, how much the average dentist has, in a rush day, to make him decidedly "uncheerful."

Miss Sophy was in to see us not so long ago, bringing her little girl with her. She was the cheeriest of all the girls I ever did have. Scold her, scowl at her, threaten her—no use, and no tears! Her bright smile and cheerful answer were there all the same. Of an early morning, during the summer, when the doors were all open, I'd hear her coming down the hallway from the elevator always singing some merry song. One evening just after hours a lady came in and surprised Miss Sophy as she was waltzing (that was in the days of the waltz) around the room with a stool for a partner, singing her own accompaniment! Of the million, Miss Sophy beat 'em all for cheerfulness, and, of course, she got married, but even *married as she is,* she appears to be cheerful still.

And what a relief to one's mind is the lady assistant! The most meticulous operator need never give a thought to the many details that are in her charge—the linen always in the best of condition and *plenty of it;* the instruments always polished to the *n*th degree, and always in their proper places; all the little details about the office just right, so that one is assured that when a critical lady patient appears, she will observe probably nothing to find fault with—that is, as far as the young lady is concerned—and, believe me, all that is a comfort. It was not so in the days of *Sandy and Charles,* I can assure you. Gosh! what a picture Sandy and Charles would have made sterilizing our instruments—and yet our patient lived!

Talking about office linen, can you imagine a dental office without any surgeon's gauze or gauze napkins by the thousand? No, your imagination is not that vivid. Well, I can tell you that in those early days, surgeon's gauze had not been dreamed of as far as dentists were concerned, and we all had our napkins made up about six inches square and hemmed or fringed, according to the fancy of the dentist. Of course these napkins could not be used once and then discarded—not much! They were as well taken care of as your handkerchief is today. A laundress in the yard was kept busy washing and ironing these napkins, and a great big rack in the sun in the yard was always covered with them drying and bleaching. Can you imagine anything so crude?

And now let us turn for a moment to the secretary. What a load she takes off our shoulders! Insurance policies, always in good shape and the premiums promptly paid. Taxes of all kinds are never a worry; always promptly paid. When a coupon falls due, it is cut and deposited in the correct bank account. Should, perchance, a bond

be called or fall due, it is promptly exchanged for another. Bills are paid, letters answered or acknowledged just as promptly during one's absence from the office or at vacation times as during the rest of the year, and when occasionally, as occasionally it does happen, a letter comes in from some correspondent noting her efficiency during one's absence from the office, it certainly is a pleasure. Then there is the inventory to be kept up from year to year, and what a relief to have the abominable income tax returns taken off one's hands!

Punctuality in the morning and an absolute contempt for the clock around closing time certainly are attributes which appeal to me. And sometimes there's more than that! Miss Rose has a machine and stationery at her home, and when, as I am working at my desk at home on a Saturday evening or Sunday morning, something turns up which renders me impatient, I just 'phone her a letter which she strikes off and mails, and we gain a full twenty-four hours in the matter. Service? Yes, I reckon that is service all right. An impatient man—it must be hard to work for one, don't you think?

And thus it is that the efficient lady assistants smooth the rough paths of their employers to a wonderful extent.

"Contentment comes to those who do
All things well and faithfully."

Do ye, fair daughters, your duty well, and contentment will be your lot. As I look upon your smiling faces, I feel assured that you, each and every one, look at your work from this same point of view and are happy in it.

1237 Maison Blanche,
New Orleans, La.

(*To be continued*)

EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—ADDISON

A big stock of Christmas cigars was threatened by fire in a Chicago warehouse. The blaze, however, was extinguished before it could do any real good.

(Scene—Sunday morning in a drug store)—Can you give me change for a dime, please?

(Druggist)—Certainly, and I hope you enjoy the sermon.

Judging from what is heard, if there is anything to the evolution of man, somewhere there must have been a parrot in it.

(Literary Person)—What book has been the most helpful to you?

(Milkman)—Webster's dictionary. The baby sits on it at the table, and that saves the price of a high chair.

Icy sidewalks have their uses. They give dentists a lot of upper plates to repair.

(Beggarman)—Kind lady, could you gimme a quarter so I can get where me family is?

(Lady)—Certainly, my poor man—here's the money. Where is your family?

(Beggarman)—At de movies.

"Lives" of great men oft remind us
As we o'er their pages turn,
That we, too, may leave behind us
Letters that we ought to burn.

(Mother)—My boy! You look so broken up this morning. Are you ill?

(Wide Pants Willie)—Yes, I've just undergone a terrible surgical operation. Father cut my allowance off!

"Walter, do you love your little baby brother?"

"What's the use? He wouldn't know it if I did."

(Cityman)—I suppose you are going to raise potatoes in your garden?

(Another Cityman)—I was, but when I read the directions for planting I found it would be impossible. They should be planted in hills, and my garden is perfectly level.

(Nurse)—Oh! Oh! ma'am what shall I do? The twins have fallen into the well!

(Highbrow Parent)—Dear me, how annoying. Run into the library and get the last number of *The Modern Mother's Magazine;* it contains an article on "How to Bring Up Children."

An Irishman was rambling through a graveyard looking over the names and epitaphs on the headstones. He came upon one which read, in large letters, "I Still Live." The Irishman looked at it in a rather scornful way, and said: "Well, begorra if I was dead and buried like that chap I'd own up to it."

There is always something. Just as the season of peace on earth and goodwill to men gets under way, a radio bug invents a wireless outfit that will pick up private conversations in any neighbor's house within half a mile.

(Builders' Foreman)—Excuse me, but are you the lady wot's singing?

(Lady)—Yes, I was singing. Why?

(Foreman)—Well, I might arsk you not to hang on that top note so long. The men have stopped work twice already, mistakin' it for the noon whistle.

(He)—Why does the presence of a coward in the dental chair remind you of a French drink?

(She)—I don't know. Tell me why.

(He)—There is always a lot of sham pain present.

The New Year custom of swearing off on something took a new turn this year. A favorite "blurb" was this: "I hereby swear never to drop another drink."

"Yes," said the tall man, "I have had many disappointments, but none stands out like the one that came to me when I was a boy."

"Some terrible shock that fixed itself indelibly in your memory, I suppose?"

"Exactly," said the tall man. "I had crawled under a tent to see the circus, and I discovered it was a revival meeting."

FUTURE EVENTS

THE VIRGINIA-CAROLINA CLINIC will hold its third annual course in the buildings of the Medical College of Virginia, Richmond, Virginia, February 14-16, 1927. Instruction will be given in oral surgery and anesthesia by Dr. J. R. Cameron, Philadelphia, Pa.; pedodontia by Dr. Thomas B. McCrum, Kansas City, Mo.; bridgework by Dr. T. W. Maves, Cleveland, Ohio, and amalgam restorations by the Harvard Amalgam Club, Boston, Mass.

Communications regarding the clinic may be addressed to

J. R. McCauley,
12th and Clay Streets, Richmond, Va.

The first annual Mid-Winter Meeting of the PENNSYLVANIA STATE DENTAL SOCIETY will be held at Scranton, Pa., March 8-9, 1927.

This inaugurates a plan, recently ratified by the Council, of holding an annual Mid-Winter Meeting. All component societies throughout the State will receive notifications and full details of the plan. This year the Eastern Zone will act as host to the Pennsylvania State Dental Society, and the meeting will be under the direction of the Susquehanna Dental Society.

Edmond J. Donnegan, *Chairman Local Arrangements,*
Brooks Building, Scranton, Pa.

The fifty-eighth annual meeting of the KENTUCKY STATE DENTAL ASSOCIATION will be held at the Seelbach Hotel, Louisville, Ky., April 5-7, 1927.

Frank B. Hower, *Secretary,*
Francis Building, Louisville, Ky.

The Fifty-Seventh Annual Meeting of the NEW JERSEY STATE DENTAL SOCIETY will be held at the Robert Treat Hotel, Newark, N. J., April 27-30, 1927. The essayists and clinicians will be the best that can be secured.

Edward L. Wharton, *Chairman Publicity Committee,*
21 Fulton Street, Newark, N. J.

The sixty-third annual meeting of the CONNECTICUT STATE DENTAL ASSOCIATION will be held April 28-30, 1927, at New London, Conn.

THE MASSACHUSETTS DENTAL HYGIENISTS' ASSOCIATION will hold its annual convention at the Hotel Statler, Boston, Mass., May 2-6, 1927.

M. Etta LeBlanc, *Secretary,*
178 Marlborough Street, Boston, Mass.

THE ARKANSAS STATE DENTAL ASSOCIATION will hold its annual meeting in the Arlington Hotel, Hot Springs, Ark., May 9-11, 1927.

H. J. CRUME, *Secretary,*
Wilson Building, El Dorado, Arkansas.

The annual meeting of the PENNSYLVANIA STATE DENTAL SOCIETY will be held at Syria Mosque, Pittsburgh, Pa., May 10-13, 1927.

The program is outlined for the particular benefit of the general practitioner. The first day will be devoted to the dental problems of childhood and dental pathology. The second day will be an operative dentistry day, covering all phases of dentistry strictly classified as *operative.* The third day will be devoted to all forms of prosthetic restoration and elaborate clinics on oral surgery. On the fourth day the oral surgery clinics will be continued and all phases of operative and prosthetic restoration will be shown in clinics and special lecture clinics by competent men. All ethical members of the dental profession are invited to attend.

Further notices and completed program will be published in this magazine at a later date. Dr. Leslie Waddill, 7124 Jenkins Arcade Building, Pittsburgh, Pa., is in charge of exhibits. Dr. H. C. Metz, 1202 Highland Building, Pittsburgh, Pa., is in charge of local arrangements. Hotel reservations should be made early through Dr. Metz's office.

A. C. BARCLAY, *Secretary,*
Highland Building, Pittsburgh, Pa.

The next meeting of the MISSOURI STATE DENTAL ASSOCIATION will be held at the Chase Hotel, St. Louis, Mo., May 23-26, 1927. Dr. G. B. Winter is President of the Association, and Dr. E. H. Keyes is Chairman of the Program Committee.

O. W. BRANDHORST, *Chairman Publicity Committee,*
225 Lister Building, St. Louis, Mo.

The annual meeting of the MAINE DENTAL SOCIETY will be held June 21-23, 1927, at The Belgrade, Belgrade Lakes, Maine.

W. F. FOGG, *Secretary,*
Waterville, Maine.

The next meeting of the WEST VIRGINIA STATE BOARD OF DENTAL EXAMINERS for license to practise dentistry and oral hygiene will be held at Charleston, W. Va., June 28, 1927.

For further information and application forms, address

DR. C. H. NEILL, *Secretary,*
206 Professional Building, Fairmont, W. Va.

The Third Annual Session of the AMERICAN DENTAL ASSISTANTS ASSOCIATION will be held in Detroit, Michigan, during the week of October 24, 1927.

JULIETTE A. SOUTHARD, *President,*
174 West 96th Street, New York.
MAUDE SHARPE, *General Secretary,*
Suite 1202, 8 West 40th Street, New York.